

ALASKA RETIREMENT MANAGEMENT BOARD

SEPTEMBER
17-18, 2020

BOARD OF TRUSTEES MEETING

TELECONFERENCE: 1-907-202-7104
SEPTEMBER 17TH ACCESS CODE: 477 663 76#
SEPTEMBER 18TH ACCESS CODE: 899 902 83#

THURSDAY, SEPTEMBER 17, 2020

- I. 9:00 am Call to Order**
- II. Roll Call**
- III. Public Meeting Notice**
- IV. Approval of Agenda**
- V. Public/Member Participation, Communications, and Appearances**
(Three Minute Limit)
- VI. Approval of Minutes – June 20-21, 2019**
- VII. Election of Officer – Vice Chair / Announcements**
- VIII. 9:10 Staff Reports**
 - 1. Retirement & Benefits Division Report
 - A. Buck Consulting Invoices (informational)
 - B. Membership Statistics
 - C. DRB Update / Legislation Summary
 - D. Modernization Update

Ajay Desai, Director, Division of Retirement & Benefits
Kevin Worley, CFO, Division of Retirement & Benefits
Sanjay Gupte, Sagitec
Kimm Nasser-Fenn, Linea Solutions
 - 2. Treasury Division Report
 - A. ARMB FY22 Budget

Action: FY22 ARMB Budget Proposal
Pamela Leary, Director, Treasury Division
 - 3. Calendar/Disclosure
Stephanie Alexander, ARMB Liaison Officer
 - 4. CIO Report
Zachary Hanna, Chief Investment Officer
 - 5. Fund Financial Presentation
Kayla Wisner, Comptroller
Kevin Worley, CFO, Division of Retirement & Benefits
- IX. 9:45 Trustee Reports**
 - 6. Chair Report, *Rob Johnson*
 - 7. Committee Reports
 - A. Audit Committee, *Rob Johnson, Chair*

- B. Actuarial Committee, *Norm West, Chair*
 - C. DC Plan Committee, *Bob Williams, Chair*
 - D. Operations Committee, *Rob Johnson, Chair*
 - E. Alaska Retiree Health Plan Advisory Board,
Lorne Bretz, ARMB Member
8. Legal Report, *Stuart Goering, ARMB Legal Counsel*

10:20AM – 10 MINUTE BREAK

- 10:30-11:00** 9. Actuarial Resolutions – FY22 Contribution Rate Setting
Norm West, Chair, Actuarial Committee
- Information: History of PERS/TRS Employer Contribution Rates
- Action: Relating to FY22 PERS Contribution Rate Resolution 2020-07
- Action: Relating to FY22 PERS RMMI Contribution Rate Resolution 2020-08
Relating to FY22 PERS ODD Contribution Rate Resolution 2020-09
- Action: Relating to FY22 TRS Contribution Rate Resolution 2020-10
- Action: Relating to FY22 TRS RMMI Contribution Rate Resolution 2020-11
Relating to FY22 TRS ODD Contribution Rate Resolution 2020-12
- Action: Relating to FY22 NGNMRS Contribution Amount Resolution 2020-13
- Information: JRS Contribution

- 11:00-11:45** 10. “Is Value Dead?”
Lawrence Taylor, Brandes Investment Partners
Brent Woods, Brandes Investment Partners

- 11:45-12:00** 11. International Equity Mandates Update
Lawrence Taylor, Brandes Investment Partners
Brent Woods, Brandes Investment Partners

LUNCH – 12:00PM - 1:15PM

- 1:15-2:00** 12. UBS Realty Investors LLC & UBS Farmland Investors LLC
Jeff Maguire, UBS Realty Investors LLC
Jim McCandless, UBS Farmland Investors LLC

- 2:00-2:45** 13. Consultant Evaluation of Real Assets Plan
Avery Robinson, Callan LLC
Jonathan Gould, Callan LLC

2:45PM – 10 MINUTE BREAK

- 2:55-3:25** 14. Real Assets FY21 Annual Plan
Steve Sikes, Manager of Real Assets & Opportunistic Strategies

Adoption: Real Assets FY21 Plan & Policies Discussion

Action: Real Assets FY21 Annual Plan
Resolution 2020-14
Action: Revised Investment Guideline
Resolution 2020-15 – Real Estate
Action: Revised Investment Guideline
Resolution 2020-16 – Farmland
- 3:25-4:10** 15. Performance Measurement – 2nd Quarter
Paul Erlendson, Callan LLC
Steve Center, Callan LLC
- 4:10-4:40** 16. Healthcare Transformation Strategy
Rob Gillam, McKinley Capital Management, LLC

FRIDAY, SEPTEMBER 18, 2020

9:00-10:00 17. Update on the U.S. Political Landscape
Ken Mehlman, Partner, Global Health of Public Affairs & Co-Head of KKR Global Impact, KKR

10:00-10:45 18. State Street Global Advisors Mandates Update
Sonya Park, State Street Global Advisors
Heather Apperson, State Street Global Advisors

10:45AM – 10 MINUTE BREAK

10:55-11:25 19. ARMB Delegations to Staff
Zachary Hanna, Chief Investment Officer

11:25- 20. Investment Actions/Information Items
Zachary Hanna, Chief Investment Officer

- X. **Unfinished Business**
- XI. **New Business**
- XII. **Other Matters to Properly Come Before the Board**
- XIII. **Public/Member Comments**
- XIV. **Investment Advisory Council Comments**
- XV. **Trustee Comments**
- XVI. **Future Agenda Items**
- XVII. **Adjournment**

NOTE: Times are approximate and every attempt will be made to stay on schedule; however, adjustments may be made.

**State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
MEETING**

Videoconference

**MINUTES OF
June 18 - 19, 2020**

Thursday, June 18, 2020

CALL TO ORDER

CHAIR ROBERT JOHNSON called the videoconference of the Alaska Retirement Management Board (ARMB) to order at 9:00 a.m.

ROLL CALL

Nine ARMB trustees were present at roll call to form a quorum.

Board Members Present

Robert Johnson, *Chair*
Tom Brice, *Vice-Chair*
Gayle Harbo, *Secretary*
Lorne Bretz
Allen Hippler
Commissioner Lucinda Mahoney
Commissioner Kelly Tshibaka
Norman West
Bob Williams

Board Members Absent

None

Investment Advisory Council Members Present

Dr. William Jennings
Dr. Jerrold Mitchell
Ruth Ryerson

Department of Revenue Staff Present

Bob Mitchell, Chief Investment Officer
Pamela Leary, Director, Treasury Division
Mike Barnhill, Deputy Commissioner

Kayla Wisner, State Comptroller
Zachary Hanna, Deputy Chief Investment Officer
Scott Jones, State Investment Officer
Stephanie Alexander, Board Liaison
Steve Sikes
Michelle Prebula
Grant Ficek
Sean Howard
Shane Carson
Victor Djalalie
Mark Moon
Ryan Kauzlarich

Department of Administration Staff Present

Kevin Worley, Chief Financial Officer, Division of Retirement & Benefits
Ajay Desai, Director, Division of Retirement & Benefits
James Puckett, Deputy Director, Division of Retirement & Benefits

Consultants, Invited Participants, and Others Present

Stuart Goering, Department of Law, Assistant Attorney General
Paul Erlendson, Callan LLC
Steve Center, Callan LLC
Tom Shingler, Callan LLC
Jay Kloepfer, Callan LLC
Avery Robinson, Callan LLC
Jonathan Gould, Callan LLC
Jeff Shields, J.P. Morgan
Scott Young, Buck
David Kershner, Buck
Paul Wood, GRS
Brian Walker, ISS
Chris Miller, ISS
Jack Ferdon, ISS
Melissa Ruffel, Legal & General
Greg Behar, Legal & General
Elaine Schroeder
Doug Woodby
Richard Farnell

PUBLIC MEETING NOTICE

Board Liaison STEPHANIE ALEXANDER confirmed that public meeting notice requirements had been met.

APPROVAL OF AGENDA

COMMISSIONER MAHONEY moved to approve the agenda. MS. HARBO seconded the motion.

MR. WEST pointed out that “Conduent” should be changed to “Buck” under No. 9.

With that correction, the agenda was approved.

PUBLIC/MEMBER PARTICIPATION, COMMUNICATIONS AND APPEARANCES

DOUG WOODYBY said that he was representing himself as a beneficiary and also as co-chair of 350 Juneau Climate Action for Alaska, a 501(c)(3) nonprofit. He thanked the Board and the officials at the Department of Revenue for all they do to protect and grow these pension funds. He said his comments focus on the extreme risk that climate and the climate crisis pose to the future of the pension funds, and said the climate risk is really a different and dangerous beast compared to traditional investment risks. Rather than a rough patch in the road, climate risk is more like a cliff; it is fundamentally different and can’t be assessed based on past volatility.

MR. WOODYBY said that current scientific understanding tells us that we’re in a climate crisis and the cliff is coming soon, and noted that previous testimony by members of 350 Juneau has highlighted the need to conduct a climate risk analysis, and Callan offers “an investor framework for addressing climate change.” He said that Anna West, who was promoted to senior vice-president at Callan last year, lays out the top issues about climate change for investors, and Callan also says that they “identify solutions and areas of progress for those seeking to address climate-related risks as well as to benefit from emerging opportunities.” MR. WOODYBY suggested that perhaps the Board, as a prudent investor, could consider taking advantage of this service to explore opportunities to protect the fund from risks imposed by the climate crisis. He acknowledged that initiating a look at climate risk will open the door into the reality that the fossil fuel industry is declining, and said that he and his group feel that it is high time to divest. He quoted Warren Buffett, who said, “You only find out who is swimming naked when the tide goes out.”

ELAINE SCHROEDER, a PERS beneficiary and 40-year Juneau resident, said she is co-chair of 350 Juneau. She thanked the Board for planning the upcoming sessions on ESG. She said that although she and 350 Juneau are deeply concerned about the impacts of the climate crisis and the moral implications of continuing to invest in the production of the fossil fuels that cause it, their past testimony to the ARM Board has exclusively focused on the financial performance of the pension funds, especially in light of the many years of poor energy sector performance, not to mention the current crash of fossil fuel stocks. MS. SCHROEDER said that the growing awareness of climate risk to public funds have motivated a growing number of U.S. state and city pension funds to divest from fossil fuels, and she would like to address the fiduciary issue.

MS. SCHROEDER said that the prudent investor rule applies, and she quoted it: “The fiduciary of a state fund shall apply the prudent investor rule and exercise the fiduciary duty in the sole financial best interest of the fund entrusted to the beneficiary.” She said they ask the ARM Board to demonstrate transparency and responsivity to beneficiary concerns by responding to their past and

present requests for information. She said they sincerely hope that ESG concerns will become important considerations for pension investments, and the horrible performance of fossil fuel investments and their grim outlook provide sufficient justification to divest the funds from fossil fuel investments. She thanked the Board and staff again for their efforts to protect the pensions and for their attention to their concerns.

RICHARD FARNELL of Juneau, another member of 350 Juneau climate action group, said he also receives a pension through the state retirement system. He called to the Board's attention a recent article in the *New York Times* from June 15, 2020, "BP Prepares for a Future That Needs Less Oil." The article said that BP is preparing to write down the value of its holdings, which is a big step toward having stranded assets, which would drive share values way down. MR. FARNELL said the author of the article attributes this decline in value to the coronavirus, as well as increasing pressure, especially in Europe, for oil companies to reduce greenhouse gas emissions from their fossil fuels. The article said the BP CEO is preparing the company for the future in which it will produce less fossil fuel than previously expected, and there is speculation by analysts that BP is likely to cut its dividend, a key consideration for investors, MR. FARNELL said. He said he hopes the Board takes this information in the spirit of constructive warning, and that pensioners in 350 Juneau want to see the pension funds be successful investments. He thanked the Board for the opportunity to make a statement.

CHAIR JOHNSON thanked the speakers.

APPROVAL OF MINUTES

MS. HARBO moved to approve the minutes of the May 1, 2020 meeting of the ARM Board. MR. WEST seconded the motion.

With no objections, the minutes were approved.

STAFF REPORTS

1. RETIREMENT & BENEFITS DIVISION REPORT

A. Buck Consulting Invoices

KEVIN WORLEY, CFO, presented the Buck Consulting invoices and briefly explained the March 31st quarterly report showing items conducted and amounts paid.

B. Membership Statistics

MR. WORLEY referred to the report on retirement membership activity through March 31st, summarizing that they've seen a net increase in active membership in PERS, but that is attributed to the defined contribution membership, with the defined benefit membership decreasing. They've had a net increase of PERS members active, and a net decrease in TRS membership as a result of a decrease in the DB membership.

C. HRA FY 2021 Contribution Info

MR. WORLEY said the annual contribution limit for FY21 would be \$2,159.04. The actual

contribution depends on the amount of time a DCR member works during the course of a year.

MR. WORLEY said that the division is doing in-service distributions as part of the CARES Act for participants who have funds in SBS or Deferred Compensation, limited to \$25,000 or 25 percent of the account balance, whichever is lower.

D. DRB Update/Legislation Summary

MR. WORLEY said there had been no changes in legislation since the last meeting.

2. TREASURY DIVISION REPORT

Treasury Division Director PAM LEARY acknowledged the retirement of MOLLY MCCAFFERTY and BRONZE ICKES. The new cash manager replacing MR. ICKES is JESSE BLACKWELL, who has been with the division for 10 years in cash management.

MS. LEARY said they had conducted a survey of staff regarding telework, and 94 percent said they were completing 90 percent or more of their regular work, with 29 percent completing more than 100 percent. She said the majority feel that working from home has made them more productive because they don't have to commute and they are able to concentrate without distractions. About 80 percent said they are communicating with co-workers and supervisors multiple times per day, and many cited benefits of teleworking such as more flexibility to take care of family or personal matters and to exercise. People did say that they miss interacting with co-workers and the discussions that flow from informal chats. The most mentioned obstacles of telework related to technology, such as VPN issues, connectivity at home, learning new software like Teams, and the need to physically do things like processing mail and accessing hard-copy records. The survey also resulted in a range of ideas about how teleworking could be implemented in the normal course of business, and MS. LEARY said they are taking those into account as they consider the possibility.

3. CALENDAR/DISCLOSURE

MS. ALEXANDER said the disclosure memo is in the packet, along with the remainder of the 2020 calendar and the proposed 2021 calendar.

MS. HARBO moved to adopt the 2021 calendar. MR. HIPPLER seconded the motion.

CHAIR JOHNSON noted that adopting the calendar doesn't preclude revisions in the future, and he said that he intends to just ask for objections instead of taking a vote on procedural, nonmaterial motions. With no objections, the 2021 calendar was adopted.

4. CIO REPORT

CIO BOB MITCHELL directed Board members to his report, and cited the three sources of authority he has to make adjustments and transactions. He characterized the activity for this period as centering around three principal activities. At the end of March and beginning of April, they rebalanced to move the portfolios toward their strategic asset allocations, purchasing almost a billion dollars' worth

of public equity assets in both U.S. and international, using funds from the internally managed bond portfolio and cash inflows from terminated strategies in the opportunistic asset class. MR. MITCHELL said they also moved forward in investing \$300 million in the tactical bond strategy, recognizing the changes in the bond market resulting from the economic and policy responses to COVID-19. Those funds came from the core bond portfolio that is managed internally. The third element was a series of divestments of the small cash position terminated mandates.

MR. MITCHELL said that on the meeting agenda are four presentations that delve into ESG considerations, and they would also review the activity that staff, Callan, and the IAC have been engaged in regarding the strategic asset allocation for the upcoming fiscal year. He said there would also be recommendations regarding the multifactor equity investment approach and a retiree income solution, and presentations on real assets and opportunistic.

MR. MITCHELL then announced that he has informed COMMISSIONER MAHONEY that he will be retiring as CIO, with his last day on the job September 11th. He said he is grateful for the 22 and a half years he has spent in the Treasury division; he said he has worked with capable and dedicated people on challenging and stimulating issues and problems, and the fact that their work impacts all Alaskans has been a powerful source of motivation and meaningfulness. MR. MITCHELL thanked the Trustees, past and present, of the ARM Board and its predecessor the SPIB, for the earnestness with which they have taken their responsibility and for their steadfast support of staff. He said the Commissioner of Revenue would undertake a search process for his successor, and in the meantime he believes the Board is in excellent hands, and he wishes the Board well going forward.

CHAIR JOHNSON thanked MR. MITCHELL for his report, and said he thinks he expresses the opinion of the Board of Trustees when he says it's an unhappy day to hear MR. MITCHELL is planning to leave, and he hopes it is for the happiest of reasons. CHAIR JOHNSON wished MR. MITCHELL well in all his endeavors and said he is really sorry to hear he is going.

MR. BRICE said he is terribly sorry to hear that news, and the gravity with which it could impact the fund and upcoming decisions is very profound. He said the Trustees will have to be very diligent in following MR. MITCHELL's leadership, and this will create a major hole in the program. MR. BRICE wished MR. MITCHELL well in his future endeavors and expressed deep and sincere gratitude for his leadership; he said he hopes and trusts that administration can find somebody half of MR. MITCHELL's caliber and quality.

COMMISSIONER MAHONEY said that when BOB MITCHELL told her he was leaving, she was really crushed. She said that in the short time she has been the Commissioner of Revenue, she has come to trust him and rely on his opinion, and his excellent performance makes her job easier. She said that in the 20 years he's been there, he has worked tirelessly to continually examine the portfolio, reduce the cost structure, and bring a lot of the asset management in house, and still deliver an absolutely excellent return on the investments. COMMISSIONER MAHONEY said that they will be searching both internally and externally for his replacement; she said the job would be posted the next day, and she will be forming an advisory committee to help interview and select his replacement. COMMISSIONER MAHONEY said she would really miss BOB MITCHELL; she wished him the best in retirement, and told him to enjoy the next chapter in his life.

MS. HARBO said she couldn't say how sad she was to see MR. MITCHELL go. MR. WILLIAMS expressed his gratitude for working with BOB MITCHELL all these years, commenting that he is thoughtful, passionate about the mission, he cares deeply, and has done an excellent job. MR. WILLIAMS thanked MR. MITCHELL for making time for meetings, for clarifying things, and for being absolutely fantastic in his role. He said it would be a big hole to fill.

MR. MITCHELL responded with thanks for all the kind words, and emphasized that this has been a dream job, meaningful, stimulating, and working with great people. He emphasized that the Board has a very capable staff, not just him, and he fully expects that they would continue to do the excellent work that they've been doing, so asked the Board to please have confidence and faith in them.

5. FUND FINANCIAL PRESENTATION

COMPTROLLER KAYLA WISNER said that as of June 17, total nonparticipant-directed assets were \$26.7 million with fiscal yearly income of \$886.3 million and a net withdrawal of \$872.7 million.

KEVIN WORLEY directed Board members to his report in the meeting packet, and said there was nothing else to say, but they would provide a separate report in September after the fiscal year is finished. He said there was a request at the start of this current fiscal year, last September, for information based on employer group contributions, like school districts, municipalities, and State of Alaska, so once they have the preliminary audit information, he would show a breakdown of revenues coming into the plan from the different employer groups.

MS. HARBO observed that it looks like in 10 months the DC people have pulled out about \$62 million, so the plan is losing about \$6.2 million a month from people who are taking full disbursements and leaving.

TRUSTEE REPORTS

6. CHAIR REPORT

CHAIR JOHNSON said that his report would repeat what MR. MITCHELL said about consideration of the ESG issues; he said there had been a specific request that he respond in writing on behalf of the Board to the people who have testified and e-mailed on this topic. He said he understands the sincerity of that request, but they need to understand that the Board makes group decisions, so it's not necessarily appropriate that he generate just one opinion. He said that is why they've set forth a number of items on this meeting agenda to consider very deeply this issue of ESG, to the extent that they can consider it, how they can consider it, and the constraints they have if they decide to consider it. CHAIR JOHNSON said he thinks the participants who have made testimony would be well served to listen to what sort of constraints they have to deal with as a Board as they consider investment issues or divestment requests, in light of their mandate to effectively provide funds sufficient for satisfying pension obligations under the law. He said the Board intends to be as transparent as they possibly can, and his understanding is that responses to requests for documents are being prepared. CHAIR JOHNSON said he wishes MR. MITCHELL well, and it's a sad day for the ARM Board, but

things move on and he looks forward to an appropriate search for a replacement, if “replacement” is even the right word.

7. COMMITTEE AND LEGAL REPORTS

A. AUDIT COMMITTEE

CHAIR JOHNSON reported that the Audit Committee considered reports from KPMG and were advised that things appear to be going normally and clean opinions appear to be underway. He noted that there are pressures to move things along because the legislature and the executive branch need the information by a certain time. Thus, the Audit Committee will be meeting on October 12 to give a final vetting to the KPMG reports.

CHAIR JOHNSON said they heard reports regarding audits that are underway, which are going along the best they can with constraints from the COVID pandemic. He said that MELANIE HELMICK, who is the Social Security representative, said that consideration is underway at some smaller school districts regarding adoption of Social Security opportunities. Finally, he said they have been advised that there are no particular legal issues affecting audit matters, and they heard a report from COMPTROLLER WISNER that controls regarding cybersecurity and such appear clean, in the sense that they are doing what they should be doing.

B. ACTUARIAL COMMITTEE

MR. WEST commented that like everyone else, he was stunned by MR. MITCHELL’s announcement. MR. WEST said that when considering the actuarial outlook, they often spend a lot of time looking at the numbers, mainly dealing with the investments and the return on the assets. However, he said in the big picture, the biggest single asset the plan has is the amount of unfunded liability, or the receivable from the State of Alaska and the various employers. He said that MR. MITCHELL had a good understanding of how that should phase into what they do in terms of cash management with the structure and allocation of the portfolio, and that would not be easy to replace.

MR. WEST reported that the Actuarial Committee met the previous day and finally approved a final report from the actuaries and the review report from the review actuaries, and those two items are presented with full approval of the committee to the Board for action. MR. WEST moved on behalf of the Actuarial Committee that the Board accept these reports.

CHAIR JOHNSON noted that a motion from a committee doesn’t need a second. He directed Board members to two items in the agenda packet under Item No. 9, Board acceptance of GRS certification for FY 2019 PERS, TRS, National Guard, JRS, and DCR Plan Valuations, and Board acceptance of the FY 2019 Buck valuations for PERS, TRS, National Guard, JRS, and DC plan valuations.

A roll call vote was taken, and the two action items passed unanimously.

C. DEFINED CONTRIBUTION PLAN COMMITTEE

MR. WILLIAMS said the DC Committee had a fun-filled, riveting meeting the previous day, and there would be two action items from Treasury that the committee approved and would like to bring before the Board.

MR. WILLIAMS said the first item is the U.S. Equities Trust Investment Guidelines. He explained that the ARM Board has investments that aren't passive and trying to track an index, but that use an index as a base to work from and apply tilts and strategies to. The guidelines say there can't be more than 5 percent of one company in a certain strategy, but recently some companies, notably Microsoft, have exceeded that limit, which makes it hard to implement that strategy. They want to make an adjustment so that strategy can be implemented without those guidelines of not being over 5 percent.

MR. WILLIAMS said the second action item is something the DC Committee has been interested in for a long time, offering options to members that allow them to have a more guaranteed retirement. He thanked CPO JIM PUCKETT for coming up to speed very quickly, and thanked BOB MITCHELL for allowing this topic to be covered in the June meeting instead of September. MR. WILLIAMS explained that an option considered at the previous meeting wasn't the right one, but the committee likes this SmartSpending option and they want to bring it to the Board for approval today.

MR. WILLIAMS said they also heard from KEVIN WORLEY about the interest on the HRA accounts and a way to mitigate the risk of people losing some of their funds when they are near retirement. He said it doesn't have to be solved immediately, but it will be an agenda item for their next meeting.

MR. WILLIAMS said they have been considering a brokerage window for members who direct their contributions in Deferred Compensation, and they plan to discuss that at their September meeting, which will give MR. PUCKETT time to look at the issue and give his input.

MR. WILLIAMS said the DC Committee heard a report from MR. PUCKETT about the response to COVID-19 that allows members to take 25 percent or \$25,000, whichever is less, from their Deferred Compensation or SBS accounts without the usual penalty for early withdrawal. He said almost 150 members had taken advantage of that program and withdrawn almost \$2 million.

MR. WILLIAMS reported that they also got an update from Empower about their COVID-19 operations and about helping people who want to withdraw money from one particular fund instead of evenly distributed from all their funds. He said Empower had done some work on that, but it is still a slow process. He said Empower also talked about the State of Alaska 457 plan, where they haven't seen the strong response they expected; it was suggested that maybe the chairs of the DC Committee and the ARM Board could put out a letter about the merits of the 457 plan. MR. WILLIAMS said that he had a meeting planned with JIM PUCKETT and Empower to discuss that further.

MR. WILLIAMS expressed his gratitude to MR. MITCHELL, MR. PUCKETT, and MR. WORLEY for being available, answering clarification questions, and scheduling meetings to dig into things

further.

CHAIR JOHNSON asked to be included in the meeting about 457 that MR. WILLIAMS mentioned, and MR. WILLIAMS said he would be invited.

D. OPERATIONS COMMITTEE

MR. BRICE reported that the Operations Committee had a quick meeting the previous day, and they received a briefing by MR. JONES, the manager of the investment operations and analytics part of the Treasury division, better known as the Middle Office. He said there was also a broad conversation about the committee structure of the Board, the size and participation and the expectations on the Trustees to participate in the various committees. MR. BRICE said that the Board needs to establish their committees based upon what the Board views as the needs of the fund, to make sure they are doing their due diligence and covering all their bases through the audit processes, the actuarial processes, and operations. He noted that the Audit Committee is a best practice, and the Actuarial Committee has been invaluable in creating a public record on the decisions and processes that go into the actuarial assumptions that the Board uses to make its projections. He pointed out that each of the Trustees have different areas of interest and perspectives, and they need to see where they can participate to ensure beneficiaries are getting the best bang for their buck. MR. BRICE said there were no action items, but good conversations in their meeting. CHAIR JOHNSON asked if it was fair to say that the committee's sense was that the status quo regarding committees is fine; MR. BRICE said yes, at this stage, but Trustees should be willing and able to form new committees as needed.

E. RETIREE HEALTH PLAN ADVISORY BOARD

MS. HARBO said she had submitted a written report and hoped people had time to read it. She said one of the main things from the "Rehab" Board was an hour-long presentation by Richard Ward, the actuary from Segal, about Medicare Advantage. She said it would be a wonderful opportunity for medical savings similar to EGWP, and she looks forward to a presentation on that at their August meeting.

8. LEGAL REPORT

STUART GOERING said there had been no new developments on the three cases he's been following. He did have a follow-up to a question from TRUSTEE HARBO regarding the Metcalfe case about how many former employees had taken distributions, which he said was about 74,000. He noted that that is not the universe of people who might possibly be able to be reemployed and reenter the pension plans at some point in the future, but that is the literal answer. He said the real answer wouldn't be known unless they lost at the Supreme Court, went back to trial, and then had to identify the people who had been reemployed and elected to repay their contributions and then were able to vest. He said the Metcalfe case was argued in February and the court is supposed to make a decision within six months, so there may be news in August.

CHAIR JOHNSON suggested taking up the two action items under Item No. 20 on the agenda from the DC Plan Committee before taking a break.

20. F. U.S. Equity Guidelines Modification

MR. WILLIAMS read the recommendation: The Defined Contribution Committee recommends the Alaska Retirement Management Board direct staff to direct T. Rowe Price to modify the investment guidelines for the U.S. Equity Trust as indicated in the attached red-line document.

CIO BOB MITCHELL mentioned that there are a number of constraints currently in the investment guidelines, including the 5 percent issuer constraint and a constraint relating to the weights in the benchmark. He said this action would remove the 5 percent constraint, but constraints at the issuer level would remain in place.

A roll call vote was taken, and the motion passed unanimously.

20. C. Adopt SmartSpending

MR. WILLIAMS read the recommendation: The Defined Contribution Committee recommends the Alaska Retirement Management Board direct staff to contract with J.P. Morgan to offer one or more SmartSpending funds in the Alaska Supplemental Annuity Plan, the Defined Contribution Retirement Plans, and the Deferred Compensation Plan, subject to successful contract negotiations.

MR. BRICE commented that at his first Board meeting in 2012, people were saying they would never get there from here on this issue, and he expressed his gratitude to the staff and other people who have worked to bring this about.

MR. BOB MITCHELL explained that as they considered spending options in retirement, two types surfaced, one which he characterized as guaranteed options, and the other as retiree income options. He said the guaranteed options tend to be annuities of various stripes or investment plans that contain annuities, and the DC Committee has been discussing these. He emphasized that if the Board considers guaranteed options that contain an annuity in the future, they should spend some time making sure that the ARM Board has the authority to take those actions. He said the option being considered now doesn't have an annuity but is an integrated solution that provides sample spending amount guidance to participants, and in which the asset allocation and sample income amounts are established in conjunction with each other.

CHAIR JOHNSON asked about the Board's ongoing obligations and their role going forward in reviewing some of these options in which guarantees are included. MR. MITCHELL said there have been internal conversations about that, and he thinks the Board's charge with respect to participant directed plans is to offer a broad range of investments at a reasonable price and to communicate that information to participants. He said there probably isn't a duty or requirement by statute that they provide options that offer spend-down, decumulation, retiring-like solutions; however, he doesn't think anything prohibits doing so. MR. MITCHELL said that to the extent that it is not part of the prescribed responsibilities, one could argue that the ARM Board may be accepting a level of fiduciary liability that may be unnecessary according to the minimum requirements, but what they are contemplating here is a voluntary option for participants, which is important, and he thinks that to the

extent the Board wants to provide more significant retiree income solutions, it should consider them.

CHAIR JOHNSON commented that it sounds like the Board can't simply walk away from this; they have to keep an eye on it to maintain appropriate engagement with it. He asked MR. MITCHELL if the Department of Administration and the Department of Revenue were okay with this, in the sense of a recommendation and a willingness to participate; MR. MITCHELL replied that the DOR supports it, and he believed the DOA does as well. MR. MITCHELL said they'd had a significant consultation with MR. PUCKETT and believes he is also supportive, as he affirmed in the committee meeting. MR. PUCKETT confirmed that they support including SmartSpending among the options available to retirees.

A roll call vote was taken, and the motion passed unanimously.

CHAIR JOHNSON recessed the meeting from 10:31 a.m. until 10:57 a.m.

9. ACTUARIAL REVIEW/ACCEPTANCE – CERTIFICATION OF FY2019 REVIEW REPORTS AND VALUATIONS

The acceptance of the actuarial review was handled under the Actuarial Committee, Item 7B.

10. OVERVIEW OF ENVIRONMENTAL, SOCIAL, & GOVERNANCE (ESG)

CHAIR JOHNSON noted that this would be the first of four presentations on ESG issues. MR. BOB MITCHELL introduced TOM SHINGLER from Callan LLC to provide a primer on ESG investing and describe the general considerations that investors take into account when incorporating ESG into the investment decision-making process.

MR. SHINGLER said he is the chair of the ESG Committee at Callan, and said he would define ESG and talk about its origins and some of the catalysts for its growth. He said the terms “sustainable investing” or “socially responsible investing” (SRI) are sometimes used instead of ESG, and he's referring to those as well. MR. SHINGLER said that ESG means Environmental, Social, and Governance factors in investing. Environmental factors include considering a company's interaction with the physical world, like their use of energy or disposal of waste, which may be affected by issues like climate change or litigation about pollution. Social factors relate to how a company interfaces with its stakeholders, like how it treats its employees and how it relates to the broader community. Governance, he said, is probably the factor that is best known from an investment perspective, with the idea that a company that has better governance will probably perform better over time.

MR. SHINGLER said it's important to understand that the issues faced vary a lot according to the sector the company is in; for example, energy companies have more environmental considerations, and there are concerns about governance in some tech companies. Thus, an ESG ratings provider will customize their assessment of a company to the sector in which it operates.

MR. SHINGLER went on to discuss how this can be applied to investing, and he said they at Callan use a spectrum of targeted ESG integration, from exclusionary screens to impact investing, which can

be applied to a portfolio by an asset owner's investment managers. MR. SHINGLER showed the exclusionary screen that would traditionally fall under the hat of socially responsible investing. It allows an asset owner to avoid or limit exposure to certain types of companies that don't align with their values, such as religious organizations that object to certain activities like gambling or drinking. Another level of ESG is partial integration, which means the owners want the asset managers to consider material ESG factors as part of their investment processes and a way to mitigate risk. MR. SHINGLER said that third-party ESG data sources can be used, like MSCI and Sustainalytics, to rate the ESG risks of companies across the capital markets universe. Then the asset manager could tilt their exposure if it's a passive strategy, or active strategies could incorporate that ESG data as part of their analysis.

MR. SHINGLER said that partial integration does not drive the decisions. He showed another strategy called incorporation or full integration of ESG risks and opportunities. In this case, a manager incorporates ESG risks that are material and could have an impact on performance, thinking of it from the perspective of risk mitigation and as a potential alpha opportunity. He said MSCI has leaders, the companies with the highest ESG score, and an investor could have a passive strategy that implements buying those companies. Active strategies would look at risks from ESG factors and either not own securities with higher risk or own them at reduced rates; or they may invest in companies because of ESG practices that they currently have or plan to implement, because they think it's an alpha opportunity. MR. SHINGLER said this is where ESG is a major driver of the buy and sell decisions in the portfolio, and he said in public markets there are active managers in bonds and equities that embed ESG in what they do.

MR. SHINGLER said that the higher profile ESG implementations are sustainable/thematic investing and impact investing, in which the asset manager is targeting a specific type of exposure based on ESG criteria. For example, with the current focus on climate change, there are thematic active strategies that focus on companies that are investing to address climate change risks, like battery makers for electric cars or companies that deal in water desalination or purification. The intent is to thematically invest in companies that are helping the world transition to a sustainable economy. Impact investing is when an investor is willing to accept some lower performance in return for social benefits. An example of this is when a public fund invests with the goal in mind of addressing the issue of affordable housing in their community. They try to achieve a positive return, but that isn't as important as addressing their social goals.

MR. SHINGLER then discussed why different plan types are considering incorporation of ESG or investing in ESG-oriented strategies. He said that some corporations want to have options in their plan that align with their social responsibility initiatives, and there is also demand from DC participants to have such options, especially among younger people. He said that on the defined benefit side, ESG is related to reputational risks, and others just think considering ESG is consistent with their goals as long-term investors for a multigenerational pension trust. Also, there may be regulatory pressure, such as in Illinois, which has sustainable investing regulations that apply to its public pension.

CHAIR JOHNSON asked if in the public world, with funds like those of the ARM Board which are directed to follow the prudent investor rule to act and invest in the best interest of the plan, it takes

some kind of statutory or regulatory instruction to get ESG responsiveness; MR. SHINGLER said he thinks it plays a major role, and he noted that Europe, with its different regulatory environment, has much higher rates of ESG adoption and managers having to address ESG consideration on behalf of asset owners. He pointed out that there are a lot of different currents in the U.S., with different states having different statutes, and a lack of regulatory clarity that makes it more difficult for individual systems to navigate and increases reliance on legal guidance.

MR. SHINGLER displayed information from the U.S. SIF Foundation showing that there has been increasing engagement in ESG investing from institutional investors. He noted that this doesn't mean that all of an investor's assets would be called ESG assets, but the survey counted investors as incorporating ESG if it is in their investment policy statement and they are starting to consider it in their plans. He said it doesn't mean that all of their implementations reflect that, and he emphasized that this level of growth doesn't necessarily reflect underlying implementation. At Callan they use the term "greenwashing" when someone says they are incorporating ESG but it is not reflected in underlying implementation.

MR. SHINGLER said that they have seen some trends in favor of ESG, like higher rates of interest among Gen X, millennials, and Gen Z, and catalysts for growth like the UN sustainable development goals and the desire to invest to help achieve those goals. He reviewed a survey from bfinance of global asset owners showing that ESG is a high priority for 51 percent of institutions in Europe and 27 percent in North America, but 46 percent in North America said they planned to implement a new or different ESG policy in the next 12 months. He said at Callan, they do believe that ESG criteria can have a material impact on investments, so it can be a useful lens to look at potential financial outcomes. He said they work with a wide range of clients, each in a customized way, understanding their mission, values, and regulatory framework. They start with education from an ESG perspective, which is what is happening at this meeting with several discussions. He said they sometimes recommend bringing in third parties like UN PRI, and often there is engagement with stakeholders and there may be a subcommittee set up to define the objectives of pursuing ESG initiatives. After that, the Board may incorporate ESG into their investment policy, or have a portfolio-level implementation, which would involve a whole process of selecting ways to implement, and then Callan would be involved in the monitoring.

MR. SHINGLER went over a Callan survey of investment funds in the U.S., which got over a hundred responses, but he cautioned that they were probably more likely to respond if they were interested in this topic, so the percentages may be artificially high. He showed that there has been increased interest in ESG, and historically endowments and foundations have had higher rates of adoption of ESG factors because of their missions or values and because they operate in a different regulatory framework than public and ERISA funds. He pointed out that further on in the slide deck there is more information on what types of implementations asset owners are carrying out and specific areas they are targeting and avoiding.

MR. WILLIAMS commented that when the Board considered ESG a few years ago, it seemed rather nascent, and it was hard to reach a consensus on questions like what to include or exclude, how Alaskans would approach it, and actually doing it, and there was the difficulty of what benchmark to use. He asked whether that has progressed, if there has been more consensus and if there is a good

benchmark to compare to. He also asked what impact the Larry Fink letter about making ESG a focal point of his BlackRock group has had on this environment. MR. SHINGLER explained that there has been broad recognition from asset managers that the reference benchmark should be a broad market cap-weighted benchmark. He said there has been a lot of product proliferation in, for example, climate change-related investing, and the general acceptance is that the benchmark is going to be the MSCI ACWI Index, developed and emerging markets, U.S./non U.S. He said there may be high tracking errors because they tend to invest in certain sectors and avoid others, but their objective would be to beat that over time and that is how the client will measure their performance. He said there are a slew of ESG benchmarks that could be used, but the asset owner would want the fund to beat the broad benchmark.

Regarding the second question, MR. SHINGLER said it's too early to say how that turns out at BlackRock. He said it's a very significant initiative that the company is putting a lot of resources into, and though there is a lot of skepticism about it, it has gotten a lot of attention because they are the largest asset manager in the world. He said it's early to see the impact, but it seems healthy, with increased recognition from asset owners that the largest holders of many stocks are the large passive providers, so whether or not they engage with companies matters a lot. He said the major passive providers, notably State Street and BlackRock, have increasingly recognized that and built out better stewardship practices, with professionals who focus on engaging with the companies that they own.

MR. WILLIAMS asked about the ESG screens that were shown earlier and how they have performed. He also asked if there is a simple way to adopt some of these things without making it labor-intensive and complicated. MR. SHINGLER replied that there are ways to incorporate it by having an index provider provide the data and work with the asset manager to implement what is screened in and out. He said there have been some high-profile cases where it hasn't worked and funds have had securities in them that should have been screened out, and there are more complicated implementations that can be done, depending on the client's objectives. He said Callan's perspective is that engagement is a tool that can be used, and divestment should be viewed as a last resort.

MR. WEST observed that it looks like quite a low percentage of Callan's survey respondents had not yet incorporated ESG, but the bfinance survey makes it look like everybody is interested. MR. WEST asked if that was because Callan works with more government funds and fewer endowments and foundations; MR. SHINGLER replied yes, that some client types are so worried about litigation in the ERISA DC space, and there is so much focus on fees and a huge shift to passive overall, so ESG is not a big priority for them. MR. WEST asked if he's saying that the U.S. clients that aren't interested in ESG have that perspective because of the regulatory environment or because they consider movement into ESG as possibly conflicting with their fiduciary duty; MR. SHINGLER replied that the ERISA is its own space, but their survey reflects a cross-section of types of funds, and adoption rates do differ by type.

11. FIDUCIARY/LEGAL EDUCATION

MR. GOERING said the objectives for his presentation are to satisfy the statutory requirements that the ARM Board receive annual fiduciary training, as well as other additional training that may be necessary for them to carry out their duties. He said that later, DEPUTY CIO ZACH HANNA would

address considerations specific to the Alaska pension funds, and this presentation was designed to help support the context of that discussion.

MR. GOERING stated that the Board primarily has a statutory fiduciary duty, and to the extent that the statutes are not specific on a particular point, there is also common law. He noted that the ARM Board funds are not subject to ERISA or to the Uniform Prudent Investor Act. However, he said that to the extent that the ARM Board's specific statutes do not govern their fiduciary duty and the outlines of the prudent investor rule, it's likely that those would be used by analogy. He said that happily, there's not a lot of judicial precedent in Alaska on the subject of breach of fiduciary duty, so if it came up, the courts would likely look Outside, but they would start with the statutory. He said the important thing to note is that they are to apply the prudent investor rule subject to the limitation that they are to consider the sole financial best interest of the fund entrusted to the beneficiary. MR. GOERING explained that the ARM Board is the trustee of the assets of the pension funds and trusts, but unlike many pension management boards, the responsibility is shared: the ARM Board has the investment responsibility and the DRB has plan administration responsibility. They share some of that through the actuarial process, he said. He noted that the ARM Board has no fiduciary responsibility before funds come into the trust and after funds leave the trust, and they are to treat beneficiaries with impartiality.

MR. GOERING showed that statute that applies specifically to the ARM Board and their management of the pension funds and trusts, highlighting the language that says they are to manage and invest the assets in a way that is "sufficient to meet the liabilities and pension obligations." He noted that the liabilities and pension obligations in this case have both a magnitude and a timing aspect, so it's important that they take into account that their fiduciary duty includes not just making sure there are sufficient assets available, but that there are sufficient assets available at the times that the obligations will become due.

MR. GOERING said that obviously, there is no ideal prudent behavior that will always be applicable in every situation and every time, and this is particularly important as to the DB plans because they are evolving. It is also becoming an issue with DC because it is starting to grow in proportion, and some participants are starting to retire. The economic background against which they are operating is changing, too, so their behavior needs to be responsive to those changes. There are both objective and subjective components, and probably an infinity of ways of managing assets that would satisfy the prudent investor rule. He said the Board has to apply judgment, and in doing so they can rely on expert advisors and consultants and delegate to Treasury staff.

MR. GOERING said that the prudent investor rule and other constraints apply to all the funds that the ARM Board manages, even self-directed ones; the Board has the obligation to exercise prudence in selecting the range of investment options that are made available, and they have an obligation to continue to monitor the appropriateness, not only of the existence of those options, but also the cost of those options.

MR. GOERING noted that "sole financial best interest" isn't defined in the statute, and that specific phrase is not used anywhere else by any other statute in the United States. He said the statute dates to 1988, and in the 1980s too, socially responsible investment was a hot topic; he said there is an

Alaska Attorney General opinion that addresses the meaning of that phrase in the context of the Children's Trust, which wanted to implement a tobacco-free investment policy. The AAG at that time indicated that the sole financial best interest did not permit an absolute prohibition on investments in tobacco. MR. GOERING said that he didn't think the conclusion would change if that decision came up today. He said he passed along a link in case Trustees want to look at that opinion. He said that essentially answers the question of what "sole financial best interest" means in the context of socially responsible investing, or ESG as it's now called. He urged the Board to rely on its various resources, especially the IAC, in evaluating the prudence of decisions that are brought to them by staff or managers. He pointed out that the Board has the ability to engage a wide variety of professionals in the decision process, and they have taken advantage of that. He said governance of this Board is extremely important, and he would encourage continuing the discussion of committee structure because it's important to have robust processes that define the decisions the Board needs to make and define the policies and procedures, and to have a robust compliance program in place to make sure those policies and procedures are being followed. He said they have excellent reporting, and it has been refined, and over time Trustees have provided valuable input to Treasury and DRB staff about the kind of reporting they want to see. He said he encouraged the Board to continue to make sure they get the kinds of reports that they need and continue to obtain and use resources. He said they should think of their process as a living organism that changes, grows, and adapts to its environment.

MR. GOERING said that as he encourages the Board to delegate to staff and managers, it's important to understand that the decision to delegate is itself an exercise of fiduciary duty, so they are expected to exercise the prudence that an ordinary investor would use when delegating. However, if they do exercise prudence in delegating, and they follow the monitoring and reporting policies they have, they are protected from any breach of duty that those delegates might commit, provided the Board did not participate in any way. He said it's also important to recognize that every delegation has to have a scope, which should be fairly specific and tailored to the amount of decision-making that they as a part-time Board can reasonably do. He examined the parameters of fiduciary duty, and said the Board's statutes permit them to indemnify fiduciaries for claims that may be made against them for breach of fiduciary duty as long as they were behaving prudently. He said the statute applies the concept of fiduciary duty to some functions that don't appear to be discretionary, such as custody and depository responsibilities. They are subject to the prudent investor rule, and the primary effect of that is that the Board can enter into indemnity agreements with their custodians and depository institutions. That changes the level of responsibility that those institutions have to take on, and that has to be addressed when contracting for those services. MR. GOERING noted that the Board's consultants and attorneys are not fiduciaries, and consultants are not eligible for indemnification.

MR. GOERING explained that the Board is made up of nine people representing various constituencies, but they don't represent the interests of those constituencies because the Uniform Prudent Investor Act indicates they have a duty of loyalty as a Trustee to the funds they are managing, and they must act in the sole financial best interest of the beneficiaries as a whole, impartially.

MR. GOERING concluded by acknowledging the fact that Trustees have taken on a really, really huge responsibility and it's a lot of work, and he thanked them for doing that. He reiterated that the Board has lots of tools available, and if they have any doubts about their responsibilities or how to

interpret information, they should ask.

CHAIR JOHNSON recessed the meeting from 12:13 p.m. to 1:17 p.m.

12. To what extent should ESG be incorporated into the investment decision-making process?

DEPUTY CIO ZACH HANNA said staff has been asked to provide recommendations on how ESG should be incorporated into the ARM Board portfolio. He said that in preparing this information, staff reviewed academic papers, a sampling of ESG policies, and discussed the issues of investment managers, ESG data providers, and consultants. He said he would cover ESG in investments, the applicable legal framework, and the ARM Board's investment rationale in ESG, then would give summary recommendations.

MR. HANNA said ESG investing has a long history, and it originated with organizations pursuing social and environmental goals along with financial goals. He said early participants and current impact investors would largely pursue divestment of disfavored industries or sectors like sin stocks and fossil fuels. He said ESG investing has grown quickly with the relatively widespread adoption of the UN PRI, and now there is a large ESG industry of investment managers, data suppliers, and service providers working to support and grow this space. MR. GOERING said there are now ESG-focused investment products and services for every asset class and investment style.

MR. HANNA said there are over 2,000 academic papers studying some combination of ESG, and he worked through a sample of them and reviewed a well-respected survey of this body of work. He said the studies and surveys found there is a generally positive linkage between ESG and corporate financial performance, which isn't surprising since ESG does encompass some risk mitigation and governance concepts that are generally considered good business management, and this increased financial performance hasn't translated into stronger investment performance. MR. HANNA said that over 70 percent of the studies that focus on portfolio investment performance did not find a link between strong ESG and outperformance. He said there are likely many reasons for that, but the result seems rational from an investment perspective. He said if companies with strong ESG are less risky, and if the market prices risk efficiently, those companies may well result in lower returns. Academic analysis of sin stocks supports this view, showing that they generally provided additional compensation to investors who hold them. He said research also shows that most ESG returns can be explained by exposure to more traditional equity risk factors like those the ARM Board invests in.

MR. HANNA said ESG evaluation can be highly subjective, with highly resourced firms trying to measure similar ESG concepts reaching quite different conclusions from one another. He showed a company-specific example, with a wide divergence of ESG ratings from various services because the level and importance of ESG factors are difficult to quantify and can be subjective. He pointed out the wide range of environmental scores for Tesla, including a near-zero score from FTSE and Black, versus the high scores from other service providers, and the very high environmental score FTSE gave General Motors.

MR. HANNA said that ERISA guidance from 2015 was fairly permissive of ESG concepts, but the

most recent 2018 Department of Labor guidance is more restrictive and says that ERISA fiduciaries must not too readily treat ESG factors as economically relevant and must always put first the economic interests of the plan. As Callan noted, MR. HANNA said ultimately every plan needs to evaluate issues like ESG through the lens of their specific fiduciary duties, and Alaska statutes can help provide focus for the ARM Board. He noted that MR. GOERING just provided guidance on ARM Board fiduciary duties, and he would repeat some aspects of the guidance that bear most directly on staff evaluation of ESG.

First, MR. HANNA said the ARM Board has the responsibility to invest the assets of the trust to meet future benefit payments to participants. The adopted rate of return of 7.38 percent is necessary to meet future obligations as estimated by the plans' actuaries. Meeting this return is challenging, and every basis point counts, he said. Toward this end, the ARM Board runs a relatively lean organization with a high focus on fees and expenditures. He repeated that the ARM Board has a statutory duty to act in the sole financial best interest of the fund, and said staff investigated that and they believe that Alaska's fiduciary duty is narrower in scope than the typical prudent investor rule and more restrictive than that of most public fund investors.

MR. HANNA referred to the 1988 opinion that MR. GOERING mentioned about tobacco divestiture, and said that staff and counsel believe the thinking in that opinion is directly applicable to the ARM Board as a fiduciary charged with the same standard. The opinion ultimately concludes that the fiduciary obligation is more restrictive and that the fiduciary cannot consider the social implications of investment. The opinion also indicates that the more restrictive language was intended in part to shield decision-makers from being pressured to consider non-financial interests.

MR. HANNA went on to say that Alaska's more general statutes on trusts also provide some additional guidance and state that a trustee shall diversify investments unless the purposes of the trust are better served by not diversifying. He said that combining the relevant portions of all of these statutes resulted in the following staff summary of the ARM Board's fiduciary obligations that is useful in evaluating ESG: To meet the obligations of the systems, the ARM Board fiduciary shall apply the prudent investor rule and exercise the fiduciary duty in the sole financial best interest of the fund and shall diversify investments consistent with this duty. MR. HANNA said that when viewed with this more restrictive scope, all sources of investment returns and risks, including ESG scores, should be viewed directly in the context of improving net-of-fee risk-adjusted returns, which is the primary focus of staff and the ARM Board.

MR. HANNA said that since the ARM Board portfolio is deeply rooted in core investment concepts, staff evaluated ESG with those in mind. He said that at the heart of many of the ARM Board's investment decisions are well-accepted financial theories, like the efficient markets hypothesis, modern portfolio theory, and others, and none of those theories is perfect, but they do contain key observations that drive ARM Board decisions. He said he would go into the specific thinking that drives the passive, the factor, and the active portions of the ARM Board portfolio and make a recommendation for each.

MR. HANNA said that passive investments in equity markets form the core of the ARM Board's equity portfolios, and staff only recommends more active equity investments in areas where

investment managers are expected to have a reasonable chance of beating passive indices. He said that with respect to ESG and the ARM Board's passive investments, staff recommends no divestment of specific sectors or industries. Divestments are likely to decrease diversification, which likely increases risk with no expected compensation that staff can quantify. He said that industry expansion and contraction has always occurred, but despite that, market-cap indices have been very difficult to beat since the timing and specific catalysts for structural change are highly uncertain. He said that ultimately, they expect that public market indices price risk efficiently. MR. HANNA said that staff recommends an annual valuation of proxy voting to ensure that all issues, including ESG, are voted in a manner that provides the best expectation of sole financial best interest.

MR. HANNA then covered factor investments, which make up 24 percent of the ARM Board's equity portfolios. Factor investments focus on compensated risk factors beyond market beta, which have significant academic support and a reasonable expectation for continued long-term compensation for bearing those risks. He noted that factors can have cyclical performance, and a common rationale for their compensation is related to the length of those cycles and the timing of potential drawdowns; long-term investors like the ARM Board are well suited to bear those risks. MR. HANNA said that the burden of proof for factors is high, and staff has recommended factors based on rigorous, empirical analysis over long time periods. These factors were once the sole domain of active investment managers, but have now been found to explain the majority of past active investment alpha, and they can now be invested in systematically with low fees.

MR. HANNA said that staff does not recommend including ESG factors in the ARM Board's portfolio. Most of the empirical studies on ESG portfolios do not find a linkage between strong ESG and investment outperformance, and to be included, ESG factors would need to be additive and provide unique risk and return contributions.

MR. WILLIAMS clarified that this recommendation was to not apply an ESG tilt to all of the ARM Board funds, but was not a recommendation to do away with the fund option that has an ESG focus; MR. HANNA said that's right. He said they believe the fiduciary obligations with regard to DC funds are more in line with establishing a broad selection of investments, and they think that an ESG focused portfolio is consistent with that.

MR. WILLIAMS asked about the slide that showed that the same company could score high on ESG with one ratings agency and low with another, and asked if the field was fairly consistent or sort of like the Wild West; MR. HANNA said he thinks the Wild West analogy is reasonable, because a lot of this is still being sorted out. MR. HIPPLER asked how old was the oldest historical data on ESG that he used in doing this research; MR. HANNA answered that the adoption curve probably parallels the amount of academic research, so most of it is fairly recent, but the question was how far back the data goes. In answer to that, MR. HANNA said that the ESG ratings research doesn't go back very far, less than 10 years for most of them. He said some of the academic research goes quite a bit further back, though he couldn't say specifically, but he said it's fair to say that most of this data is relatively recent, and the subject will undoubtedly continue to be studied and more data will become available.

CHAIR JOHNSON commented that the indicators are that increasing numbers of public pension funds are engaging in ESG investment considerations, and asked if that is a consequence of changing

their statutory mandates, or the adoption of formal rules allowing them to, or if it was a consequence of people just more broadly interpreting what prudent investing is about. MR. HANNA offered a couple of answers, saying that it is staff's view that Alaska's fiduciary standard is narrower and more strict than most public fund investor standards, and some of those other funds may just have more traditional prudent investor standards, and some of them may have reached the conclusion that ESG factors have a role to play in that. However, he reiterated that it is staff's conclusion that only to the degree that ESG factors play a quantifiable role in risk and return should they be considered in the ARM Board portfolio.

MR. HANNA said that ESG investment factors should be considered in the ARM Board's active investment portfolio, and are already important considerations for some ARM Board investments. He said the inclusion of ESG concepts in the ARM Board's active investments varies widely; for some investments like infrastructure, ESG can be fundamental to the stewardship of publicly important assets. In other investments like real estate and private equity, improving ESG is a core part of the investment thesis. MR. HANNA said that for the majority of active investments, ESG factors are considered with varying levels of importance alongside other sources of risk and return, and there were some investments where ESG wasn't a significant contributor.

MR. HANNA made the point that the ARM Board's active investment managers, both external and internal, are largely fiduciaries of the funds charged with the same restrictive fiduciary obligations. He said that active managers are highly incentivized to use all sources of information on risk and return to outperform, as the success and survival of their business depends on it. Consequently, many of the ARM Board's active managers do incorporate ESG concepts into their investment analysis, but the time frame and relative impact of ESG is specific to each investment. MR. HANNA said that with respect to active investment, staff recommends continuing evaluation of investment managers to ensure that all relevant factors, including ESG, are being considered in the financial best interest of the funds. Staff does not recommend broad ESG guidelines or ESG-specific policies for managers since the degree to which ESG considerations impact an investment are highly variable. He said staff also recommends annual evaluation of proxy voting.

Summing up, MR. HANNA said that staff has concluded that the ARM Board has a narrow fiduciary standard that only allows the consideration of financial factors, and that the ARM Board is a highly structured portfolio dedicated to this with the right structure in place for continued focus on all factors that drive risk and return, including ESG.

MR. HANNA said that consistent with this, staff is recommending no divestment of sectors or industries, no ESG-specific changes to systematic risk factor investments, no broad ESG guidelines or ESG-specific policies, and ongoing evaluation of investment managers to ensure that relevant factors, including ESG and proxy voting, are being considered according to fiduciary standards.

CHAIR JOHNSON asked if MR. HANNA would think a policy saying "Thou shalt consider ESG, all other things being equal" would be in violation of the mandate under which the ARM Board operates; MR. HANNA said it would not be staff's recommendation, and he thinks the fiduciary standard is already relatively clear that all factors should be considered, and he thinks elevating any specific set of factors above another is unnecessary.

MR. WILLIAMS clarified that it sounded like the recommendation on passive was that there is not an ESG component to it; but within the active community, without saying to divest of this or that, ESG should be one of the components that is considered within active management. MR. HANNA agreed that that was an accurate depiction. MR. HIPPLER asked MR. HANNA to explain why ESG is superfluous for passive but sometimes integral for active investments; MR. HANNA said it comes down to staff's view that ESG risk and return factors need to be considered specific to each individual investment. He said he doesn't think there is any way to have a one-size-fits-all standard to markets broadly, and any standard will certainly have to change over time.

DR. MITCHELL commented that he thinks the staff recommendation is well-reasoned and solid. RUTH RYERSON said she thinks it sounds exactly like the evaluation her previous staffs came up with, and the Trustees have to look out for the financial interest of the fund first and foremost. DR. JENNINGS concurred.

CHAIR JOHNSON thanked ZACH HANNA for a terrific presentation.

13. ISS PRESENTATION

MR. BOB MITCHELL explained that Institutional Shareholders Services is a leading provider of proxy voting services, and they would cover their benchmark plan and a few other things that they provide to investors, and would specifically cover how they address ESG issues. He introduced JACK FERDON of ISS.

MR. FERDON said that he is the ARM Board's client service manager at ISS, so he is the day-to-day contact for staff. He introduced PATRICK MCGURN, ISS special counsel and head of strategic research and analysis, and CHRIS MILLER, an associate vice-president who focuses on their specialty research policies.

PAT MCGURN said he would go over the benchmark policy that the ARM Board subscribes to and also provide a comparison with some of their other policies that take ESG factors into consideration. MR. MCGURN said that ISS has been in the proxy voting business for more than 30 years, with a team now of over 400 research and data professionals around the globe; he said they cover around 45,000 meetings in 115 different markets, and they are leading providers of both governance and environmental and social data. He said they are a fiduciary, not an activist or watchdog group dedicated to solving the problems of the world. They want to help solve problems relative to the ARM Board's meeting its fiduciary responsibilities related to proxy voting.

MR. MCGURN said that ISS is a for-profit service, and they started with the idea of providing independent research to institutional investors to help them vote their proxies, and after that they listened to clients and went from providing domestic to providing full global voting recommendations and research, to providing agency or back-office operations. Later, in response to clients, they developed both custom and specialty proxy voting policies. He said they have been in this business since 1997, and they've done faith-based policies, SRI, public fund policies, sustainability, and most recently climate. He said that all of their policies are driven by an annual research formulation and

review process, and explained how they start with a policy survey each year and a search of the background information, then they hold roundtables with their institutional investor clients and other constituencies to make sure there won't be any unintended consequences if they put a certain policy change in place. He said they actually put potential policy changes out for a comment period and consider the feedback received before they come back with their final policy updates.

MR. MCGURN showed a comparison of the ISS benchmark and specialty voting policies, noting that the benchmark policy is oriented to the single bottom line. MR. MCGURN said that one of their earliest specialized policies was their SRI policy, aimed at religious groups, charitable foundations, universities, endowments, and other that use the typical triple bottom line value proposition: people, planet, and profit, otherwise known as social, environmental, and financial. He said that is probably incompatible with the fiduciary standard of Alaska, given the bottom line focus there. He said he would de-emphasize that policy in this discussion, but it leads to the discussion of the newer policies, first the sustainability policy. He said this was driven largely by talking to a large cross-section of their clients that have adopted the UN PRI, or principles for responsible investment. He said it focuses on the three initial principles of the PRI: one, to incorporate ESG into investment analysis and decision-making; two, to be an active owner, that is, to incorporate ESG into ownership policies and practices; and to seek appropriate disclosure to allow them to implement principles one and two.

MR. MCGURN said the latest policy and the one they don't have a track record established for other than 2020 so far is the climate-based policy, which takes the sustainability policy one step beyond to look at climate-change-related risk.

MR. MCGURN said ESG really stands for having a focus on risk, first and foremost, not pushing for societal change or moral or ethical goals, but looking at risk raised by environmental and social concerns. He said that most of the shareholder proposals that they see now aren't overly prescriptive or unduly burdensome on the board and management of public companies, and he thinks that is due to a shift in the proponents and their focus. Many of the proponents today aren't the religious organizations and other issue-based activists of the past, but rather are institutional investors, including SRI funds themselves as well as asset owners, including a number of public pension funds.

MR. MCGURN said the most popular model today is what he calls RQ, which is a recommendation for report on risk. He said environmental issues include risks like climate change risk, water use risk, pollution, and renewables; he also noted that there are opportunities in renewables.

He said social has probably had the most explosive change in meaning over the past decade. He said social used to be about asking people to get out of certain lines of business, but today it focuses more on risk, asking companies to put out sustainability reports, and to address supply chain risks such as slave labor, child labor, and other issues related to human rights. He said there have been proposals focused on the risks for health companies of the opioid crisis, proposals on gun safety, and tech companies have their own set of issues with data privacy and cyber security.

MR. MCGURN said governance covers broad elements like board refreshment, diversity, and having the right skill sets in place, as well as risk management oversight. He said that each year for the last several years, boards and public companies have negotiated for the withdrawal of roughly half of all

of the E&S proposals that were offered to public companies in the U.S., and he thinks the numbers of ballots that institutional investors cast as “abstain” on E&S issues is approaching zero. He said that is important because for a long time a lot of institutions saw no economic issue whatsoever, and felt free to abstain. However, today investors rarely abstain from voting because they view these issues as things that will either raise or hurt the value of their investments.

MR. MCGURN said support for ESG is up, with rising numbers of majority votes on E&S resolutions, notably Johnson and Johnson being asked to report on governance measures that they have implemented to deal with the opioid crisis. He said there are a number of proposals dealing with reports on sustainability and climate change and risk, and human capital management is also coming up in proposals, issues like equal employment opportunity and board diversity. He said that ISS is already supporting a substantial number of those proposals because they believe in providing material information to investors to help them make voting decisions. He showed that the SRI policy has a higher rate of support and doesn’t necessarily focus on a cost/benefit analysis because it aims at the triple bottom line. The sustainability policy numbers fall somewhere in between. He said he thinks sustainability takes a harder position by adding transparency so as to mitigate investors’ concerns about the associated costs. He said sustainability tends to be more supportive than the benchmark policy would be for various E&S proposals, but it doesn’t throw cost/benefit out the window.

MR. MCGURN said there was a request to discuss the general principles that drive the benchmark voting policy approach to E&S proposals, and he culled it out of one of their specific policies, which is an overriding set of principles that guide vote recommendations that aim to enhance or protect shareholder value. He said they considered elements like proper forum, or whether the issue is properly dealt with by a corporation or more effectively by legislation or government regulation; whether the company has effectively already substantially implemented what the proposal is asking for; and the most longstanding and intensively applied test, whether it is unduly burdensome or overly prescriptive, amounting to micromanagement. He said that SEC changes have allowed companies to ask for leave to omit resolutions from their ballots that would count as micromanagement, which winnows down the number of highly prescriptive proposals in the U.S.

MR. MCGURN said that peer comparisons have become a much bigger part of analyzing the proposals in recent years. A lot of old peer comparisons looked at whether providing the additional information would put a company at a potential competitive disadvantage or would require it to put proprietary or confidential information into the marketplace. He said that today, the peer comparison may focus on whether the company is lagging in disclosures and hurting itself in the marketplace by having less transparency. He said they also look at norms-based evidence like whether there have been significant controversies, fines, penalties or litigation associated with the company’s practices.

MR. MCGURN pointed out that many of the factors in their approach to sustainability are close to the standards they use under the benchmark policy, but the major difference is that in sustainability there is a premium on transparency and on adherence to recognized international standards and principles. MR. MCGURN said staff had asked him to discuss some specific examples; he reviewed Union Pacific and J.P. Morgan Chase in the U.S., and Equinor, a Norwegian oil company, and discussed conclusions reached by ISS teams on various recent proposals, explaining how they differed between the benchmark and the sustainability policy teams.

CHAIR JOHNSON asked if the ISS policy that is being used for proxy voting on behalf of the ARM Board is the benchmark process he described; MR. MCGURN said that is correct.

CHAIR JOHNSON asked MR. GOERING if there was anything in the presentations that followed his that he would differ with or offer a different direction on. MR. GOERING said that he would return to the staff recommendations, which he said were consistent with the advice he had given, particularly as to the variation between passive, factor tilt, and active investments. He said a couple of things have come up that may be questions in Trustees' minds, starting with the ESG option in the DC plans. He said that when the Board decided to offer that option, they did exercise their fiduciary responsibility and had a rigorous discussion of whether it was appropriate, and the Board judged that it was. MR. GOERING suggested that it would be a good idea to continue to revisit such decisions regularly based on the performance of the specific option. He said that while it may be appropriate to offer some ESG options, it would probably not be appropriate to have it as a default option.

MR. GOERING noted that he had received an inquiry from a Trustee about the specific Attorney General opinion he referred to earlier, and he had sent out a link to all participants in the meeting.

14. PERFORMANCE MEASUREMENT - Q1

MR. ERLENDSON from Callan remarked that it was a surprise when BOB MITCHELL announced his retirement, and he said Callan wishes him all the happiness in the world, since he has given them so much happiness at Callan by being a very thoughtful, open-minded, yet opinionated person who is solely focused on doing what is best for the beneficial owner of the assets. He said there are a lot of egos in the world, and they run into a lot of them in this business, but Bob is the exception in being both well-done and rare at the same time.

MR. ERLENDSON showed a list of some observations that are relevant as of the end of March 31st, saying that the advent of COVID-19 has demonstrated how precarious the inner connections across the global economy are, how tightly related, and how subject to unanticipated adverse events they are. He said one of the key underpinnings of any investment is making educated allocations of capital based on time horizon, risk tolerance, and potential upside, but always with a mind towards what could possibly go wrong, and he remarked that usually the thing that happens is not anticipated.

He pointed out a surge in unemployment to almost 15 percent during April, and said that things had started to pick back up in the economy, but then had been significantly reversed. He said there's been a lot of speculation about whether the recovery will be V-shaped, U-shaped, or L-shaped, which would mean no recovery, and nobody really knows. He said unless there is superior information, given the long-term time horizon for this fund, he would encourage the Board to stick with their asset allocation policy.

MR. ERLENDSON showed economic factors, and noted that although the downturn in GDP in the first quarter is fairly dramatic, it was worse in the global financial crisis. He said he had seen reports from the Atlanta Federal Reserve that have indicated that the updated GDP decline in the first quarter was 5 percent, and they are projecting the second quarter will decline by over 45 percent. He said

there is a huge range of projections, but it is likely that the second quarter decline will be greater than in the GFC. As for inflation, the long-term 50-year average is about 3.9 percent, but it was 1.50 year over year as of March 31, and has been way below historical averages for a long time. MR. ERLENDSON said Callan doesn't see any forces that would drive inflation higher going forward, and the implication is that nominal returns will be lower because interest rates and inflation, the two economic forces on which capital market expectations are built, both remain low.

MR. ERLENDSON reviewed Treasury yield curves, and pointed out that interest rates had dropped by over 1 percent since the end of March 2019, and in fact there was a time when all interest rates were zero, or less than 1 percent. Even 30-year Treasuries were below 1 percent, and that yield curve is a baseline for building capital market expectations going forward. He said interest rates had risen marginally by June 17th, but not by much.

MR. ERLENDSON then showed unemployment statistics, and said there have been more than a million unemployment claims for over 13 weeks in a row. The largest single weekly claim before the current time was in 1982 with 695,000 claims. MR. ERLENDSON noted that people with a college degree or higher have an unemployment rate around 7.4 percent, but it's almost 20 percent for those with less than a high school diploma, and one big issue is whether there will be job creation in the service sector of the economy or a continued bifurcation between professionals and service industry workers. He said one lesson from the global financial crisis over a decade ago was that in responding to an economic crisis, the Fed learned to get in early and get in big. He said Congress did the same with the paycheck protection program, mitigating how bad the problem could have been, but there is still a long way to go.

MR. ERLENDSON showed a comparison of the drawdown on the S&P in this crisis versus the two previous ones. When the tech bubble blew up, the drawdown was a very long period, and during the global financial crisis it took 191 days to reach the bottom, but the decline then in the S&P was relatively gradual compared to this time. From February 19th, at the top of the market, it was down over 34 percent, then it popped up relatively strongly, even though year-to-date as of June 17th the return is still below zero. Showing a history of corrections in the S&P, he pointed out that seven were greater than 10 percent, but none were as big as the most recent one. He also said that the VIX, a measure of volatility within the market, has been up dramatically, dwarfing any other periods of volatility.

MR. ERLENDSON reviewed annual rates of return in various asset classes, pointing out large variations, and said that's why they believe a strategic asset allocation is vitally important. He noted that in the decline, equity-oriented asset classes tend to suffer the most, and fixed income will rise to the top. He said fixed income will not achieve a return, it will only get to the actuarial rate, but it is there to mitigate the losses when the asset classes that are hoped to exceed the actuarial rate suffer a decline instead. MR. ERLENDSON said that all of the economic sectors had positive returns that were near or above 10 percent, so if nothing horrible happens in the remainder of June, they expect that the second quarter won't look too bad from an investment perspective.

MR. ERLENDSON showed the returns for the first quarter and those same indexes for the trailing one-year return as of March 31st. He noted that the bar that sticks out the most is the Bloomberg

Barclays Long Government Credit, and observed that when a market environment penalizes equities, being invested in these other assets is beneficial.

MR. ERLENDSON said there was a lot of distress in the real estate markets, with the retail sector down about 3 percent and a number of major retailers filing for bankruptcy. Owners of retail properties only collected 36 percent of the rent that was due, and he asked what is going to happen to the value of those properties and the ability to collect rents if people don't go back to stores. He said as long as a building isn't sold, the markdown is unrealized, but the lack of income is a realized foregone investment return, so the issue of operating income from real estate is going to be a big deal.

MR. ERLENDSON said that almost every indicator suggests a 100 percent probability of a recession. He said things have gotten a little better as of mid-June, but they are still pretty dark, and the outlook is bleak, and more importantly, uncertain. Thus, Callan suggest the Board carefully follow their asset allocation policy, and said there would be an update about that later in the meeting.

MR. CENTER discussed the performance of funds under the ARM Board's purview. He started with three pages that they added in response to one of the suggestions from Anodos in their performance audit, for Callan to develop a performance dashboard for review of the various plans that the ARM Board oversees. He explained that they did three separate slides, one for the healthcare portfolios, one for the military plan, and one for the PERS, TRS, and JRS, because these three pools have the same benchmarks, and it makes sense to do these dashboards based on stand-alone benchmarks. He went through and explained each slide, and said that overall the performance was very strong for all three plans.

BOB MITCHELL commented that the quarter's performance being viewed is fairly extreme, and these numbers are preliminary and he doesn't believe they fully reflect the performance that will be coming out of private equity and real assets. He said he expects that when the final numbers come out, the performance will adjust fairly significantly. MR. CENTER thanked MR. MITCHELL for pointing that out.

Discussing the asset allocation as of March 31st, using the PERS plan for illustrative purposes, MR. CENTER said there had been some overweights and underweights that were within the guideline bands, and have probably corrected themselves, so he would expect the allocations to be very close to targets.

MR. CENTER showed how the plan has performed relative to both its target return and the actuarial expected return. He said it was a difficult quarter to make the line chart because there was a negative 11 percent dip. However, the plan did outperform its benchmark, being down 11.25 percent compared to the benchmark's negative 12.8 percent. This resulted in the plan losing ground relative to its long-term actuarial expected return. He said longer term, both PERS and TRS outperformed their target for the last quarter and one-, two-, and three-year periods. He said over the past five, seven, and ten years, both PERS and TRS have been above the target and above the median. Over the full historical period of 28.5 years, PERS is ahead of its target benchmark by approximately 19 basis points. MR. CENTER reviewed the performance of various asset classes including domestic equity, small cap, global equity, emerging markets, fixed income, opportunistic, tactical asset allocation strategies, and

the real assets portfolio.

Then MR. CENTER discussed the Defined Contribution plans. He said the key takeaway was how much of the plan is invested in the target date funds. For the PERS DC plan, about 60 percent is invested in target date funds as of quarter end. He showed the quarterly net inflows and outflows and investment gains and losses for the plan. He said in TRS also about 60 percent is invested in the target date funds, and both PERS and TRS are cash flow positive. The Deferred Compensation plan has about 20 percent allocated to the target date funds, and that plan is cash flow negative with about \$5 million in outflows. SBS also has about 60 percent allocated to target date funds, and was cash flow negative, with about \$10 million in outflows in the first quarter.

MR. CENTER reviewed the underlying investment options in the target date funds, saying that the target date funds that Alaska uses have a slightly higher allocation to publicly traded equities than some peers, which can result in below-median performance when the equity markets have a correction like in Q1. He said that the passive options within the DC plan have all performed in line with their respective benchmarks. The Northern Trust ESG fund has performed pretty much in line with its benchmark, the international equity fund did okay, and the T. Rowe Price small cap fund had a very strong quarter during a very difficult period for small cap.

CHAIR JOHNSON recessed the meeting from 3:06 p.m. until 3:15 p.m.

15. ASSET ALLOCATION DISCUSSION

MR. MITCHELL explained that each year the Board considers a strategic asset allocation for the following fiscal year, and to provide framework for that, JAY KLOEPFER from Callan will be going through how the recommendations were arrived at. He highlighted that this effort has taken place over the past couple of months and has involved staff, Callan, and the IAC.

PAUL ERLENDSON followed up on a question about an ESG survey by bfinance. It was done as of year-end 2018, with 485 respondents. He said about 257 were in North America, the U.S., and Canada, 165 were in Europe, and 63 were in the Australia-Asia area. MR. BRETZ asked how many were requested to respond; MR. ERLENDSON said he would try to dig up that answer.

MR. KLOEPFER said that MR. ERLENDSON had done a great job of laying out the environment investors are now in, and he added that they get asked all the time whether they would change their capital market assumptions after this cataclysmic event. He said the answer is perhaps, but they've been through this before, and they didn't change their assumptions in the middle of the global financial crisis, or in the middle of the 2000 – 2002 meltdown because they remind themselves that their long-term goal is setting investment policy, not predicting the market. He said there is no doubt that things have changed, but a handful of participants in their world did make changes in March, and he thinks they sorely regret it already. MR. KLOEPFER said another issue is that the equity market is not the economy. There is a big dislocation, and they aren't quite sure where it will all fall out. But they are looking out 10 and 20 years, and the recent months should not be the tail wagging the dog.

MR. KLOEPFER said they have an inflation expectation of 2.25 percent; he said that though it has

fallen close to zero right now, all of the monetary and fiscal stimulus around the globe raises the chances of inflation. He said that clearly the Fed has not been successful in stimulating inflation in the last 10 years, so they may not be successful in the future, but inflation could come back, and that would have an impact on the expectations. He reviewed the standard set of assumptions, then discussed the asset classes specific to the ARMB and the funds that it oversees. He showed the weights of the various asset classes and said that using the assumptions that they released at the start of this year, the 10-year expectation for compound return would be 6.64 percent and a projected risk of 12.88 percent. He said 6.64 percent is below the target for discounting the liabilities when they do the valuation report, and is really the longer-term target. He reminded Trustees that they had this discussion last year about the right time horizon for setting a return expectation, and these funds, although they are closed, have a very long time horizon and a very long payout, so 20 years might be a better way to look at the expectations.

MR. KLOEPFER noted that they do a separate allocation for the militia plan with different weighting, and it doesn't include some of the alternatives that the PERS and TRS plans have. With its current allocation, the militia has an expected return over 10 years of 5.56 percent, with lower volatility because it has less equity and more fixed income.

MR. KLOEPFER said that when they do 10-year expectations, they are trying to get to a very long-term expectation, and they have a projection that they think of as long-term equilibrium, which has mean reversion as one of its key elements, plus a lot of judgment. He said the 10-year expectations are about 7 percent for stocks, less than 3 percent for bonds, and 2.25 percent for cash with no real return. The actuaries are looking out even farther than 20 years, and how to get there from here is the problem.

MR. HIPPLER asked, if the long-term inflation prediction is a positive number, 2.25 percent, and the long-term projection for bonds is that they have a real rate of return that is also in excess of zero percent, and if long-term Treasuries are currently yielding less than the projection for inflation, should they be buying any of those bonds? MR. KLOEPFER replied that over the shorter term it may look pretty unattractive to hold bonds, but it is a tactic around the long-term expectation that the market will be clear and efficient, and they will get a real return for bonds. He said in the short term, they may not, but they are trying to think over a much longer period, and they have a bond model that helps meet long-term goals. He acknowledged that that was set at the end of the year before the coronavirus hit, so the information would likely be revised. But he said it is a slippery slope to move a long-term expectation around based on what happened over a very short time period, and although the current negative yields on fixed income aren't attractive and may result in lower expectations, who's to say that anything they come up with now would be better than what they came up with a few months ago. MR. HIPPLER thanked him, and followed up by asked with the long government bonds' 10-year geometric yield at 2.55 percent, if that is even mathematically achievable, whether there is room enough for interest rates to fall to make that possible; MR. KLOEPFER said it is possible, though perhaps he wouldn't call it expected anymore.

MR. WILLIAMS asked how far ahead the projected standard deviation was for, and if they did a Monte Carlo simulation to get those, mentioning that often long-term forecasts end up wildly off, but he asked if they usually fall within the range of the standard deviation. MR. KLOEPFER explained

that standard deviation is an annual expectation, not a compound number. He said this is a mean variance framework, so they have a mean, which is an average; the standard deviation, which is the square root of the variance; and they compound to get the geometric number. So the bigger the risk, the lower the compounded number becomes, and if it is compounded over longer and longer periods with the same volatility, the result will be lower. He said they believe that over the long term, they may get more of a mean reversion figure. MR. KLOEPFER said that they have forecasts that date back to 1989, and they are trying to pick a midpoint of range and then use standard deviation to describe how wide that range might be. He said that on any given year they can be pretty far off, but for a total portfolio and over a five- and 10-year period, he's been impressed with how close to the actual midpoint of the range they end up.

MR. KLOEPFER told an example of someone asking him, "Oh, you and your forecasts, how good are they anyway?" So they compared them in equity, fixed income, international equity back 10 years to the start of the global financial crisis, and Callan was within half a percent for each of those asset classes compounded for 10 years; he said they were off by a couple of percent in international equity, though. He said they do have a track record that they look at every year, and over the range of potential outcomes they are in the middle of the distribution even at minus 2 for the year.

MR. WILLIAMS asked if the standard deviation came from simulations or estimates; MR. KLOEPFER answered that the standard deviation is a projection of how volatile each asset class will be each year. MR. WILLIAMS said he understands how they could have varied accuracy annually, but as they go further out they are more precise. He said recent events were unpredictable, but he's upbeat about it getting better in five or ten years out, so he asked if that was why they think they are more accurate over a five- or 10-year period; MR. KLOEPFER said yes, good years will cancel out bad years, and when they build something like a 7 percent return, they are trying to capture the underlying pieces and how much will come from each. Beneath it all they believe investors will get paid for being owners over being lenders, because they're taking equity risk, and that premium is built in to the projections. How much the premium is will be informed by current conditions and valuations, but they still believe these longer-term relationships are going to hold, he said.

MR. KLOEPFER went on to show them an idea of the path to this idealized long-term expectation, and what a 10- and 20- and 25- and 30-year expectation might need to be as they move across the different time horizons. He explained that one of the challenges, if you have forecasts that are more reflective of what is going on right now in the market versus how you think the market will move over time, is that investors with a specific need might be forced to take on more risk than they would like when interest rates and inflation and all are low. He said that acknowledging the longer time horizon means maybe they don't have to take quite as much risk, and that was part of the discussion as to using 20-year expectations.

MR. KLOEPFER explained that the 7.13 percent return target is the 4.88 percent real return target that's embedded in the valuation plus their expectation for inflation, which is 2.25 percent. He showed the current PERS and TRS target that was adopted a year ago, and said Callan considered what changes might be made to retain that 7.13 percent target over 20 years, and he showed five possible mixes, which he briefly reviewed. MR. KLOEPFER explained the adjustments that they are suggesting this year, with a little less in fixed income because they had a lower expectation for that,

1 percent more in private equity, and 2 percent more in public equity. He went through the same exercise for the militia plan, which is much smaller and has much greater fixed income exposure. He said the militia plan doesn't have embedded in its valuation process an implied discount rate like the PERS and TRS plans do, and it is closed and substantially overfunded, but there is a very long benefit tail to the distributions, so it still has some time horizon for taking on risk. MR. KLOEPFER showed projections for what might happen under the various mixes Callan is suggesting.

MR. MITCHELL added that staff would be recommending that the National Guard and Naval Militia Plan adopt an asset allocation that includes private equity and real assets. He said that if approved, staff's intention would be to phase it in in quarterly increments over the course of the next fiscal year.

CHAIR JOHNSON recessed the meeting at 3:48 p.m.

Friday, June 19, 2020

CALL BACK TO ORDER

CHAIR JOHNSON reconvened the meeting at 9:00 a.m. All Board members were present.

16. PORTFOLIO UPDATE

CIO BOB MITCHELL said happy summer solstice eve, and welcomed everyone. He said this portfolio update was influenced by the fact that the Board was about to talk about the strategic asset allocation. He said the Board has been pretty busy shaping the portfolio in the past several years, and there would be presentations later on the last two asset classes that staff has yet to review and bring before the Board, wrapping up that activity. He said that at a certain level, it's always an ongoing exercise, but he thinks now it's largely been reshaped, and now they need to talk about where they are and a framework for thinking about portfolio positioning. MR. MITCHELL said that most of his comments would be focusing on the nonparticipant-directed plans, of which there are 14 that the ARM Board oversees. Of those, seven are what he would characterize as legacy plans from the DB program and seven are nonparticipant-directed elements of the defined contribution retirement system.

Showing a pie chart, MR. MITCHELL said that the legacy PERS defined benefit pension health trust component dominates the assets of these plans, followed by the TRS legacy pension and health trust. Combined, those two are over 96 percent of the assets which, earlier that same week weighed in at about \$26.7 billion, which is almost \$2 billion more than at the May meeting, to give a sense of how quickly the markets have moved, he said. He noted that of these 14 plans, there are effectively two asset allocations, one representing 13 of the plans and one representing the military plan. He reminded the Board that for the 13 plans, the actuary, Buck, has an expected rate of return objective of 7.38 percent, which is based on a different inflation assumption from Callan's, and they have to account for that.

MR. MITCHELL said the military plan is a bit different, and he believes Buck is in the process of reevaluating that return objective, and he anticipates that they will recommend a range between 6.0

and 6.75 percent. He also mentioned that the military plan is overfunded significantly, and as a result the normal cost has not been funded for FY21, and his understanding from MR. WORLEY is that it is unlikely to be funded in FY22. He said that warrants additional analysis by the actuary.

MR. MITCHELL reiterated that return expectations have been falling, and it is staff's view that it is likely to remain an environment of relatively low returns. He cited a study that forecasts about 40 percent lower growth of global GDP over the next 50 years relative to the last 50 years, based on slowing growth in the workforce due to the aging of the population. He also showed how global debt levels have been increasing as a percent of GDP over the past several years, and said that high levels of debt tend to be associated with slower GDP growth going forward. He said the outlook suggests modest fixed income growth, and the portfolio has had to become more risk-seeking and more recently has had to invest more in alternatives in order to generate that same return.

MR. MITCHELL went over how conditions are changing how they shape the portfolio. First, they make sure they have enough liquidity to fund net outflows for pension payments, which they estimate will be about \$100 million a month in FY21 based on actuarial projections. He said they have capital commitment in the private equity program, and the cash flows are roughly in balance, but in stressed times, one should expect a deterioration in that with less money coming in from existing investments and potentially more money going out for capital commitments. He said they are estimating that from being roughly in balance, that could deteriorate to minus \$300 to \$500 million a year. He said they want to have the ability to rebalance to their targets, and along those lines, they have doubled the fixed income allocation, which may sound big, but they were starting from a relatively small level of 11 percent. He said that at about 24 percent now, it's reassuring that the fixed income exposure is now close to median relative to peers.

MR. MITCHELL said once they checked the liquidity box, they quickly focused on cost. He said for the past several years they've made a number of moves to try to preserve or improve investment outcomes while reducing the cost footprint. He said cost is dominated by investment manager fees, though there is also the ARM Board's allocated cost of running Treasury. He said it's important to note that they aren't trying to minimize costs, but to shift the focus to net-of-fee outcomes and to be confident in what they are spending. He pointed out that there are hidden costs to overdiversification, because when the portfolio is splintered into smaller pieces, each individual investment is smaller, and many manager fee structures are set up so as more is invested, the marginal cost of investment goes down.

MR. MITCHELL said they have taken steps to reduce alternative investments, eliminating the absolute return asset class, lowering real assets, and exiting investments in public infrastructure and master limited partnerships and pipelines. He said they have confidence in the remaining assets in alternative, but they are applying a higher bar because they think there are sacrifices to being in alternatives, like relinquishing the rebalancing benefits of more liquid assets. Also, some of the alternative investments have less return history and are more opaque, so manager and strategy selection becomes more important.

MR. MITCHELL showed the asset allocation of the portfolios from the early '90s forward, and the manager dispersion chart, and then went on to the proposed asset allocation, which he said would

result in a modest increase in equities of a few percentage points and a decrease of roughly 3 percent in fixed income.

MR. MITCHELL went on to the military plan, saying that they recommend targeting the same risk level they have currently, and refining that as they get more information from Buck. They are also recommending more broadly diversifying the military plan by investing in real assets and private equity. They believe this will increase risk-adjusted returns, and will operationally simplify things. As to why they weren't investing in those all along, MR. MITCHELL said that his predecessor, MR. BADER, indicated to him at the time when the alt investments were ramping up that there were concerns about the liquidity needs of this portfolio. He said they have analyzed that and now believe there is no legal basis for excluding them.

MR. MITCHELL then went through the current manager structure, meaning how they are investing in each of these asset classes and how they are selecting managers. He said that in public equities they've increased passive and factor based, and de-emphasized active, and they've evaluated private equity and decided not to make any changes. MR. MITCHELL said that in real assets and opportunistic there would be presentations later from STEVE SIKES. He showed the eye chart from about a year ago, and said that he anticipated that the proposed changes would reduce the number of strategies to 34, down from 75 previously, which will dramatically simplify the implementation at the portfolio level. He said fees are coming down as well, and they estimate further savings in FY21.

Addressing performance, MR. MITCHELL said the first quarter of private equity would be revised significantly lower, but on domestic equity they believe that the current structure makes sense, that it will outperform over time, though it will experience periods of underperformance like this. He said one big takeaway is that if beta or the broad markets are going to be less attractive, they would attempt to diversify those risks and seek skill to increase the active risk in the portfolio. He said they've been doing this at the asset class level, and the next step is to look at the whole portfolio and view the interaction of those various active strategies together. Doing that requires that they build some infrastructure on the risk side, which is on the research agenda.

CHAIR JOHNSON asked for input from the IAC. DR. MITCHELL said that he would support this direction, which is consistent with what's been happening over the past years, and the future emphasis is good too. DR. MITCHELL commented that the idea that good private equity managers have persistently good returns is contrary to what happens in the active public sector, where there doesn't seem to be any consistency. He said both practitioners and academics have tried to figure out why that is, and he thinks it's because the better private equity managers are offered the better deals without having to compete for them.

MR. WILLIAMS said that private equity looked really strong, and he asked if they think it is strong now, or if it kind of lags and there is a downside that just hasn't shown up yet. He also said he's been going through withdrawals in being able to have conversations with the IAC members during breaks or lunch at meetings, and maybe they should figure out having some office hours for the IAC. He said that in one conversation, DR. JENNINGS talked about the importance of when the Board makes really strong strategic decisions that might take 10 years to play out, that they memorialize that to make sure that four or five years into it they don't change it, when the intention was for it to be a 10-

year strategy. MR. WILLIAMS asked if, as they approach a change in CIO, MR. MITCHELL feels that the Board is memorializing some of the major decisions and how long they are in play, his major concerns, things he's proud of and so on, so that as someone new comes into that position, there is enough of a landscape background and the new person will know the environment and the thinking behind decisions that were made.

MR. MITCHELL replied that he does expect the preliminary private equity returns to be revised dramatically downward for the first quarter. He said that in terms of consistency, he found it interesting that as he moved from being a fixed income portfolio manager to deputy CIO to CIO, his time horizon consistently increased, and as that happened, he grew to appreciate the risk that stems from governance, from changing the way things are invested frequently, and he thinks it is a risk, when there is turnover and change, if they try to change horses midstream. However, he said that has to be balanced with the need to be engaged in the markets and make adjustments as necessary as markets evolve and try to improve how things are done over time. He said never changing is not a good idea, but neither is always changing; some balance is necessary. MR. MITCHELL concluded that it is incumbent on staff and on Callan, the IAC, and the Board to keep that perspective and try to put guardrails on the grid change but be open to it.

MR. MITCHELL said he thinks they've done good work in simplifying the portfolio, and he believes that the portfolio will generate higher returns at a lower price point, so he thinks it's set up pretty well. However, he said the next CIO may have different views, and they should consider those views, but be mindful of the degree of change.

DR. JENNINGS commented that the move to internal management to lower costs, and to more factor-based investing has been the legacy of MR. MITCHELL's short tenure as CIO, and in the most important decision of selecting a replacement, he would encourage them to focus on someone with a similar world view. He said there is risk in switching back and forth, so they should support the moves that have been done and that are being forecast, and not reverse them.

17. CHANGE SCIENTIFIC BETA INDICES

MR. MITCHELL said that at the last meeting, they had a rather lengthy presentation from Scientific Beta where they walked the Board through the evolution of implementation options for factor-based investing, and at this meeting MELISSA RUFFEL and GREG BEHAR from Legal & General would continue that conversation. MR. MITCHELL said that they would provide more focus on evolution in the markets and potential consideration for changing the indices that are currently in use for the ARM Board, and an action item would follow the presentation.

GREG BEHAR introduced himself as head of Index Strategy at Legal & General Investment Management, who manage the Scientific Beta developed ex-U.S. and emerging market assets, and he thanked the Board for the privilege of managing their assets. He said Scientific Beta is an academic institution that developed indexes in 2013, and as one of the largest index vendors in the world, they can manage to the risk/return characteristics of any index. He said they believe indexing is an active decision, so they pay very close attention to the construction and methodology of indexes.

MR. BEHAR said he would discuss the evolution of Scientific Beta's methodology from the ARM Board's first investment several years ago in the four-factor methodology, and the Board should see that moving from the four-factor methodology to the six-factor, high factor intensity, sector-neutral should produce more meaningful, more diversified factor exposures while mitigating some of the tracking error risk, and helping them stay the course for the long term. He said there are two main reasons why they see institutions moving in this direction: one is to complement their active exposures, and the other is to complement market cap-weighted passive and to diversify their exposure relative to market cap.

MR. BEHAR discussed the evolution of factor-based investing and how actual skill or luck has become a smaller portion of the opportunity set.

MR. BEHAR said that the ARM Board has been a big beneficiary of the market-cap weighted returns with their low cost and transparent nature over the years, and from their analysis, dating back to the tech bubble, this is the highest point seen historically in concentration in the index. He showed a chart showing that in 2016, 30 percent of the S&P 500 dictated its returns, and now only 15 percent of the stocks in the index are driving the performance.

MR. BEHAR explained that the two main evolutions since the Scientific Beta index came out in 2013 have been the addition of two more factors and the use of high factor intensity, which uses a filter to create more diverse factors and more potent or intense factors. He showed the ARM Board's current four factors and methodology, and said these are all consensus, academic factors that have a risk-based and behavioral-based rationale for their existence. He said the academic evidence shows that the other two factors, profitability and low investment, are unique and additive, not just more value and momentum. Then he discussed the high factor intensity filter that Scientific Beta developed after years of research and explained how it works. MR. BEHAR talked about the risk constraints, and ways of decreasing tracking error risk; he said Scientific Beta offers two methodology choices, sector or country, that can be constrained.

MR. BEHAR discussed how to bring this all together, and how to evaluate these changes from a quantitative perspective to make sure it's aligned with the investor's unique goals and objectives. He said that from talking to the staff at Alaska, they know that having very diversified and very intense factor exposures is desirable, but they also want to reduce the tracking error. He discussed some ways to measure the effects of changes in the real world.

MR. BEHAR discussed factor deconcentration, which he said is essentially factor diversification, and explained that with six factors, the highest the ratio could be is six, so the greater the number, the better. He explained, saying that if there is equal exposure to each one of the six factors, the ratio is six, but if most of the factor exposures come from value and a little bit from others, the ratio will show exposure to essentially 1.86 factor deconcentration. He explained that a factor intensity of .90 times the factor deconcentration of 6 gives a factor exposure of 5.37, and the higher the number the better. He said this factor exposure quality number is an important variable in talking to the investment staff. However, he said one could have very good factor exposure quality but too much tracking error, and there is a tradeoff.

MR. BEHAR showed the ARM Board's current global four-factor index, and the deviations versus the policy benchmark. He said they realize that factor-based investing is a significant portion of their allocation, and it complements the market cap-weighted passive exposures as well as their active exposures. He said that compared to the four-factor, they think the six-factor MBMS HFI Sector Neutral will result in more intense, more diversified factors, while constraining the tracking error and mitigating some of the relative downside versus the policy benchmark.

MR. HIPPLER commented that it appears that the real strength of this is, for whatever reason, that this theory works better in bear markets than bull markets, and asked theoretically, why; MR. BEHAR said that is correct, and he explained that an improved bull market return relative to others comes from sector neutralization, because the sector biases have been tightened relative to the policy benchmark, and the tracking error has been tightened, so they are participating more in the upside of the market. He went on to say that there are always tradeoffs; when sectors are neutralized, the information ratio is improved, so relative drawdown is better, but the max drawdown could in fact be worse compared to the six-factor non-sector neutralized. He said that in talking to investment staff, it became apparent that focusing on factor exposure quality and reducing the tracking error was the key component to have better bull/bear returns, more consistency versus the policy benchmark, and to be able to stay the course.

MR. MITCHELL directed Board members to the action item in the meeting packet, and said that staff recommends that the ARM Board authorize staff to migrate the existing Scientific Beta mandates to the six-factor high-factor intensity, sector-neutral implementation for the United States, the international developed markets, and the international emerging market mandates, subject to successful contract negotiations.

MS. HARBO so moved. MR. WILLIAMS seconded the motion.

MR. CENTER commented that Callan is comfortable with this change and believe the recommendation makes sense.

A roll call vote was taken, and the motion passed unanimously.

CHAIR JOHNSON recessed the meeting from 10:30 a.m. until 10:42 a.m.

18. REVIEW OF OPPORTUNISTIC INVESTMENTS

STEVE SIKES, the manager of Opportunistic Strategies and Real Assets, gave an overview and update on the opportunistic asset class, including its history, current investment strategies, performance, FY 2020 events, and said he would conclude with recommendations.

MR. SIKES stated that the assets as of March 31st represented about 6 percent of ARMB's assets, approximately \$1.5 billion. He said the role of the opportunistic asset class is to provide an allocation of the portfolio to house strategies that provide a unique source of return that is not available in the traditional asset classes, or that may not be a good fit in the traditional asset classes, including tactical asset allocation, alternative beta, alternative equity, and other opportunities.

Return expectations are to exceed a 60/40 benchmark over rolling six-year periods. He said currently this is a domestic benchmark, and the fiscal year target allocation is 8 percent.

MR. SIKES said the history of the opportunistic asset class has evolved significantly since it was first created in 2017. Initially the asset class was made up of unique equity and fixed income strategies or hybrid approaches that were expected to produce distinctive characteristics as compared to more generic approaches. He said examples include a Buy-Write strategy, managed volatility, convertible bonds, municipal bonds, and high yield. He explained that over time many of these strategies were terminated in an effort to simplify the portfolio, reduce fees, and improve performance. Multi-asset strategies were added in 2018 in pursuit of alpha from asset allocation decisions. McKinley Healthcare was added in 2019 as a thematic strategy. Alternative risk premia strategies were transferred from absolute return last year, and investment and risk parity was also contemplated as this fiscal year began.

MR. SIKES explained that in tactical asset allocation, ARM currently invests in two strategies, Fidelity Signaling and PineBridge. Both of these were funded in 2018, so their track record is short. MR. SIKES reviewed the managers in various asset classes and their strategies.

MR. SIKES reminded the Board that they have received a number of presentations on risk parity strategies, which are an alternative portfolio construction process to traditional mean variance optimization approaches. Risk parity is based on the view that risk forecasts are more reliable than return forecasts, and are therefore a superior way to determine allocations. He explained that by applying a risk parity framework, a more diversified portfolio can be produced by applying leverage and targeting an overall volatility level. Each asset class is sized to make an equal contribution to expected risk, which is different from traditional mean variance portfolios where equities have a much higher risk contribution to portfolio risk. MR. SIKES said that leverage is a key part of risk parity, because an unlevered risk parity portfolio produces insufficient returns. Leverage is necessary to scale the solution and achieve a risk/return that meets earnings objectives, and it is created using futures contracts and implementation.

MR. SIKES said that staff spent a significant amount of time with the leading risk parity managers in the industry to better understand the risk and rewards of the approach. He said that coincidentally, the coronavirus market shock produced an interesting time period to observe the various approaches to risk parity and consider whether the risk/reward tradeoff is worthwhile. MR. SIKES said that while risk parity appears to have weathered the market shock with only some bruising, they believe the resulting market location of fixed income rates is cause for pause since the leveraged fixed income is a primary tenet of the strategy. He said the diversification benefits appear to be muted at this point as rates approach zero, and higher rates, no matter how unlikely at this time, could create meaningful losses given the skewed nature of the duration risk.

MR. SIKES said they continue to believe the risk parity concept has many favorable characteristics, and they will continue to monitor market conditions for a more favorable risk/reward balance; however, at this time they do not recommend that the ARMB pursue risk parity further.

MR. HIPPLER asked how risk parity did over the past six months; MR. SIKES said he couldn't say

over the past six months, but in March, which was the big drawdown month, most risk parity managers underperformed a 60/40 portfolio; the 60/40 portfolio was down about 9 percent, and of the managers they talked with, the worst was down 13 percent. He noted that one of the points promoted on risk parity is to protect the portfolio in market downturns, and generally speaking, the ones they looked at didn't do that. He explained that in a situation like with the coronavirus, where the volatility index hit a record level, the risk parity managers are in a position where they've actually got way more risk in the portfolio than they want to try to target that. Generally, they are trying to target a 10 percent volatility level, consistent with the 60/40 portfolio. He said also, in these big drawdown events, correlations go to one on a lot of the assets, so some of the benefits of correlations that are engineered into the portfolio don't work as well as hoped.

MR. WILLIAMS asked when MR. SIKES said "staff believes," how many people is that, and is there a consensus, noting that it looks like they still find the risk parity approach appealing. MR. WILLIAMS observed that there was a drawdown where it underperformed and missed, and it makes him think they were pretty gung-ho in jumping into risk parity. He asked if it is now the environment where they still think it's a risky thing and they want to go through it, or they want more time to pass, or if there is a certain condition they are waiting for to change before they would want to look at risk parity more seriously. MR. SIKES replied that he and MR. CARSON were the leads on the project, and they worked with six investment managers discussing their portfolios, expectations, and track records. He said each manager had a different approach and implementation, and one of the things that is unique is how they manage tail risk and the potential for that coronavirus drawdown. He said they all had different ways of identifying when correlations increase and when volatility is about to increase so they can quickly take off risk and not get blown up. He said he and MR. CARSON worked closely with the managers to evaluate that and then advanced a recommendation to MR. MITCHELL.

MR. SIKES said that personally, he thinks some aspects of risk parity are really cool, and he likes the idea of leading with risk, which is more predictable, and letting return follow instead of trying to forecast return. He said the challenge they came to is where the ARMB is in the fixed income market. The reality is that leveraged fixed income is a big part of the correlation story and getting this strategy to work. He said when they look at the fixed income markets right now, it seems unnatural, and they just couldn't get to the comfort level of advancing it to the Board at this point. He said it's not a wait and see, it's a no, but he personally plans to monitor it.

MR. SIKES went on to a performance summary of the primary strategies as of March 31st, since the asset class was created in July 2017. He said that given the changes that have occurred in the asset class, the overall inception-to-date return has limited value at this point in time. Over the past quarter and the year, he said the portfolio had underperformed its benchmark by over 569 basis points.

MR. SIKES said two structural issues have contributed to this underperformance: the overall asset class benchmark is a domestic focus, which contrast with the global mandates that occupy the portfolio; and the McKinley Healthcare strategy is all-equity, so it creates a high equity risk exposure compared to the 60/40 asset class benchmark. He said these two issues explain approximately 400 basis points of the one-year asset class underperformance, so this is not a good

measure of the efficacy of the portfolios. He said the track record here is still relatively short, and they are still confident in the strategies that make up the portfolio.

MR. SIKES said that for Fiscal Year 2021, staff plans to review other multi-asset strategies to consider as a complement to the ARMB's existing opportunistic portfolios. If they identify possible candidates, they will bring them to the Board. He said they also plan to continue to work with the internal research group to improve optimization of the portfolio weights.

MR. SIKES said that to improve the measurement process they believe a benchmark change is in order, and they have an action item for the Board that reflects this change.

CHAIR JOHNSON asked whether the benchmarks had been changed with respect to any of these in the opportunistic area before the current request; MR. SIKES said they have not, but what has changed is the makeup of the portfolio. He said when this asset class was first created in 2017, it was a collection of all domestic strategies, but substantial changes made by the Board last year brought some fairly dramatic shifts, and he said that looking back, they probably should have made this benchmark change then. He said the proposed benchmark is more consistent with the current constituents, all of which have global mandates.

MR. WILLIAMS said he would be interested in seeing some of those benchmarks going further back, because he thinks the seeming underperformance may just be because of what has happened in the past year. MR. SIKES said that the benchmark they propose moving to is the Board's benchmark for international equity, so effectively they are applying what the Board has adopted at the global equity asset class level into the opportunistic class level, which tunes the opportunistic benchmark to be reflective of the overall asset class structure.

MR. MITCHELL remarked that staff's position is that they are content with the existing equity benchmark, and if it is the Board's choice to keep the existing equity benchmark, he doesn't foresee a structural issue with that. He said the motivation for recommending this change from a domestic-only equity benchmark to a global benchmark is they believe it will reduce the tracking error because it would be more consistent with the implementations in Fidelity and PineBridge's portfolios, which they think will make it easier for staff and the Board to evaluate the relative performance in the asset class.

19. REAL ASSETS MANAGER STRUCTURE CHANGES

MR. SIKES started with some background, saying that as of March 31st, real assets made up 14.6 percent of ARMB's portfolio with investments in real estate, farmland, timberland, infrastructure, and energy. He said the presentation would culminate in an effort by staff to continue the vision of CIO MITCHELL to simplify the portfolio and lower fees in a way that maintains expected risk-adjusted returns with adequate diversification. He said similar efforts have been made and implemented in the public assets classes, and also he would address recommendations made by Callan at its last review in September 2019. He said they would recommend changes in the real assets portfolio that would refine the strategic focus, simplify account structure, calibrate portfolio weights toward long-term strategic weights, reduce fees, and reduce operational administrative costs.

MR. SIKES said that Callan recommended staff review the role of the real estate separate accounts and evaluate whether they should remain in place. He said staff believes that real estate separate accounts should remain a key component of the real asset portfolio due to a number of superior attributes compared to alternatives, most notably superior historical returns, low fees, and control of strategy and capital structure of investments. He said additionally, staff recommends ARMB redeem from the J.P. Morgan Strategic Property Fund and the UBS Trumbull Property Fund and use proceeds to increase the Sentinel separate account by \$125 million and the BlackRock open-end fund by \$100 million. The Board has already made the decision to redeem from the UBS Trumbull Property Fund, but MR. SIKES said it was repeated here since the position is still held by the ARMB and to provide a holistic perspective on the portfolio changes.

MR. SIKES said that while both J.P. Morgan and UBS have been good long-term investments for ARMB, lower fee options are available that are expected to produce good returns and provide a sufficient diversification benefit. He said the Sentinel separate account is an apartment-based portfolio, while the BlackRock Core Property Fund is a diversified commingled vehicle that invests in all property types. He said that collectively, the changes would improve strategic focus on multifamily assets, eliminate two accounts which will simplify account management, and lower management fees. He said the estimated savings is \$1.8 million in fees per year. He said the portfolio would then be underweight office and retail and overweight multifamily and industrial, and explained that they think industrial properties and well-positioned apartments will continue to perform well.

COMMISSIONER MAHONEY asked when this forecast was prepared; MR. SIKES answered that it was prepared prior to the market drawdown with the pandemic, but he said that since then, he had asked BlackRock to update the numbers, and all the forecasts came down a bit. He said the difference between industrial and apartment versus office and retail widened. COMMISSIONER MAHONEY asked him to send out those updated numbers, and he said he would.

MR. WEST commented that the commercial mortgage-backed securities delinquencies were just released earlier this week through the month of May, and more than a quarter of all the retail commercial mortgage-backed securities are delinquent, meaning the lessees aren't paying their mortgages.

MR. SIKES said that Sentinel and BlackRock would increase at a combined 14 percent of the real estate portfolio from their current level, and considering some of the primary risk factors, such as concentration risk, primary market exposure, and tracking error, they believe the portfolio will continue to be sufficiently diversified through the combined exposure of the separate accounts, the BlackRock commingled fund, and REITs. They believe these risks are sufficiently mitigated and a good tradeoff for the reduced cost and portfolio simplification.

Regarding the farmland portfolio, MR. SIKES said Callan recommended they evaluate the existing separate account managers, Hancock and UBS, with regard to their role and fit with the program objective and goals and with regard to the ability to pursue permanent crop investments. He said staff had done this and they believe the plan would benefit by consolidating accounts under UBS Agrivest. This would help optimize portfolio structure and strategy, reduce fees and expenses, and reduce

administrative costs through economies of scale. He said this recommendation was not being made because Hancock has done a poor job, but rather because they believe the UBS philosophy is more aligned with ARMB's portfolio objectives, which are focused on lease space investing in row and permanent crops. He said they estimate cost savings of \$1.4 million per year by consolidating the accounts, and that cost savings and investment philosophy are the primary drivers of the recommendation.

MR. SIKES said that a similar proposal is being made in timberland. He said staff is recommending consolidation of accounts from Hancock to TIR, with the purpose of optimizing strategy, reducing fees and expenses, and reducing administrative costs. He said after identifying the potential to improve economics by consolidating accounts, careful thought was given to which manager was best aligned with ARMB's portfolio objectives and cost-savings potential. He said in this case, TIR is being recommended, and they estimate the fee and cost savings at about \$700,000 per year. He said they reviewed strategies with the timberland managers and they are optimistic about returns, and the asset class also provides diversification.

CHAIR JOHNSON commented that the diversification issue is always being considered, and they could probably save costs on a lot of things by aggregating to just one manager in an investment type, but they keep a number of them for diversification. He asked if it is absolutely staff's considered opinion that they are not losing the significant valuable element of diversification by this consolidation proposal. MR. SIKES replied that there are always tradeoffs, and to be clear, this proposal will transfer assets to different managers but will keep them in the portfolio. So from a property level, the diversification will not be changed, but what is potentially lost is the different ideas and management practices of two different teams. MR. SIKES went on to say that he had reflected on how this was initially set up and why it is okay now to change, and when they first started investing, particularly in farmland, that was on the cutting edge of institutional investors investing in the asset class, so it made sense at the time to have more than one manager, but now, more than 15 years later, there is much more transparency in those asset classes, and he thinks if there are other areas of the portfolio where there are potentially duplications of manager coverage, they should probably also consider collapsing those mandates to achieve some cost savings. He said the cost savings come from the fee structures, the operating costs, and renegotiation of fees with managers.

MR. SIKES went on to say that in timberland, they believe Hancock has done a good job for the ARM Board in acquiring properties in the Pacific Northwest, but they think TIR's focus on the South and their search for value-added enhancements to the core of the portfolio of assets is a differentiating factor. He said that like in farmland, they lose manager diversification and increase operational risk by not having a backup manager, but they think these risks are manageable and acceptable given the expected benefits of consolidation.

Regarding infrastructure, MR. SIKES said that Callan recommended activating the dividend option for both funds to help rebalance the real assets portfolio into other areas. He said they had activated the option for the IFM fund but are waiting to do so for J.P. Morgan, since that fund position is much smaller. He said they intend to look for opportunities to achieve a more diversified and balanced exposure between the funds over time.

MR. SIKES said they elected to transition the J.P. Morgan fund to a currency hedge vehicle. He said currency volatility had had a big negative impact on returns and volatility, and hedging this risk factor would create a more stable return stream, more consistent with the objectives of the asset class. This will also establish consistency between the two funds, as the IFM fund has been hedged for some time, he said.

He gave a summary of the manager structure changes presented in this proposal, and commented that they would target the farmland and timberland separate account changes to be implemented by September 30. He said the redemptions from the UBS and J.P. Morgan funds were expected to take longer as both have queues. He said the reinvestment into the BlackRock open-end fund and Sentinel separate accounts also may take up to one year to fully effect. Also, he said the timing of the redemption and reinvestment will probably not be simultaneous, which may cause some volatility in real assets allocation levels. He said these changes led to three action items for the Board to consider.

COMMISSIONER MAHONEY asked if MR. SIKES thought the queues would be changed or reduced as a result of the negative outlook with some of the real estate; he answered that it was different for the two funds. He said that with UBS, the exit queue was fairly significant, impacted by their retail investments, and UBS has developed a strategy to deal with it, but it won't be fast. He said that J.P. Morgan also has an exit queue, for different reasons, and the weights in these asset classes appear to be higher than they want in the target asset allocations. He said that the performance in the March 31st quarter was either flat or positive, but there are headwinds in what's going on underneath currently and these issues are likely to delay the managers in addressing their redemption queues.

ACTION: Real Assets Manager Structure Changes

MR. SIKES said the first action item proposes to effect the manager changes he presented, with the broad goals of simplifying the portfolio, achieving \$4 million in fee and cost savings, while maintaining the return profile and sufficient diversification.

MS. HARBO so moved. MR. WILLIAMS seconded the motion.

A roll call vote was taken, and the motion passed unanimously.

ACTION: Farmland Guidelines, Resolution 2020-02

MR. SIKES explained that the guidelines currently require a minimum of two managers. He said the recommendation was that the ARMB approve Resolution 2020-02, which adopts the revised Farmland Investment Guidelines.

MS. HARBO so moved. MR. HIPPLER seconded the motion.

A roll call vote was taken, and the motion passed unanimously.

ACTION: Timberland Guidelines, Resolution 2020-03

MR. SIKES explained that the current guidelines require a minimum of two managers, and given the consolidation recommendation, they are revising the guidelines to eliminate that requirement. Also, he said they are doing a cleanup item regarding a change the Board made in the past, changing the investment objective from a minimum of 5 percent net real rate of return over rolling five-year periods, to a net-of-fee total return between public equities and fixed income over rolling six-year periods. He said that wasn't caught in the guidelines at the time, so he's catching up. MR. SIKES said the recommendation was the ARMB approve Resolution 2020-03, which adopts the revised Timberland Investment Guidelines.

MS. HARBO so moved. MR. WILLIAMS seconded the motion.

A roll call vote was taken, and the motion passed unanimously.

20. INVESTMENT ACTIONS/INFORMATION ITEMS

CHAIR JOHNSON noted that Item C and Item F under this heading had already been taken care of, and asked MR. MITCHELL to lead the Board through the others.

E. Opportunistic Benchmark Change

MR. MITCHELL started with Item E because the decision on it would impact the benchmarking that would be incorporated into the asset allocation resolution. He read the recommendation: "The Alaska Retirement Management Board revise the benchmark for the opportunistic asset class to 60 percent MSCI ACWI IMI and 40 percent Bloomberg Barclays Aggregate Index effective July 1, 2020."

MR. WEST so moved. MS. HARBO seconded the motion.

MR. WILLIAMS pointed out that DR. JENNINGS had submitted a comment on this, which was read by MS. ALEXANDER: "We have always known that there was a weak fit between the opportunistic asset class and its benchmark. I generally favor simple and consistent benchmarks, but globalizing the equity 60 percent seems reasonable." CHAIR JOHNSON thanked DR. JENNINGS for that helpful comment, and said he's glad somebody pointed that out.

MR. WILLIAMS said that by nature he is always really leery on benchmark changes, but this makes sense to him, so he will vote yes.

A roll call vote was taken, and the motion passed unanimously.

A. Asset Allocation Adoption

CIO BOB MITCHELL noted that the asset allocation had been discussed in his presentation as well as by JAY KLOEPFER from Callan. He read the recommendation: "Staff recommends the Alaska Retirement Management Board adopt Resolutions 2020-04 and 2020-05 approving the asset allocations for Fiscal Year 2021."

MS. HARBO so moved. MR. BRETZ seconded the motion.

MR. MITCHELL emphasized that they would be investing in private equity and real assets for the military plan. MR. CENTER said that Callan has been very involved in these developments and they are supportive of these changes.

COMMISSIONER MAHONEY asked MR. MITCHELL to provide some perspective on the real estate component in regard to the recent forecast of negative returns in retail and office. MR. MITCHELL answered that clearly the recent events have had negative impacts on significant components of real estate, and he would expect returns to decline. However, he said that over the intermediate to long term they believe there is a benefit to increased diversification, and they believe the real estate component of the real assets portfolio is well positioned. He pointed out that real estate comprises about half of the asset class, and the other half is comprised of other diversifying elements, so he thinks that while they are trying to mitigate certain issues with phasing in the illiquid strategies, it is staff's view that moving into real assets and private equity would improve the risk adjusted return of that portfolio over time. CHAIR JOHNSON added that DR. JENNINGS gave a double thumbs-up on this action.

A roll call vote was taken, and Resolution 2020-04 and 2020-05 were adopted in a single unanimous vote.

B. Comparison of FX Conversion Costs

MR. MITCHELL said that 20B was an information item in response to a question that Acting Commissioner of Revenue MIKE BARNHILL asked in the December 2019 meeting relating to how the ARMB's foreign exchange conversion costs compare to their peers. He said staff contacted Callan and was put in touch with two firms that provide this measurement analysis, and initially they were told that there is no resource that could directly compare that at the plan level. However, at the manager level, that information exists and is more appropriate and more comparable for different types of strategies, so he said they did an analysis and concluded that the ARM Board's costs are roughly average.

C. Adopt SmartSpending

SmartSpending was taken up after the Legal Report, before the morning break on Thursday, June 18.

D. Convert to Lendable SSGA Indices

MR. MITCHELL said this was a request to convert the share classes of two passive investments that the ARM Board has with SSGA in international equity passive investments, one of which is benchmarked against the MSCI World Ex-U.S. IMI Index, and the other benchmarked against the MSCI Emerging Markets Index. He explained that they currently are investing in commingled vehicles designed to match the return objective and as a result those assets are no longer available to participate in the securities lending program. However, SSGA has a securities lending program, and they reflect that in a different share class of the existing investments.

MR. MITCHELL said staff is recommending converting the share class that they are now investing in to the share class that allows for securities lending. He said staff has evaluated the securities lending program, explaining that in the past they had discontinued securities lending just prior to the Great

Financial Crisis in the spring of '08, and then later reinstituted it. He said the current securities lending program has key differences from what they had before, centered around the quality of the investment vehicle into which the cash collateral was invested, and they also put a high bar before a security would be considered for lending. It would have to call a "special" rate 50 basis points above the market, which drastically lowers the participation in the program. He said that SSGA's implementation has a 25-basis-point bar, which in their view is sufficient to weed out lending securities for a modest gain. He added that the investment vehicle into which the cash collateral is invested is identical to the cash vehicle into which the cash is currently invested for the ARM Board's program.

MR. MITCHELL said there was one other difference worth noting, which is that unlike the ARM Board program, the SSGA program accepts collateral in the form of Treasuries and U.S. agencies, and staff is comfortable with that. He said it has the effect of reducing the investment risk, bringing it down to the underlying collateral. He added that their indemnifications are very similar to those that the ARM Board has in their existing program. He said for those reasons, staff is comfortable with this recommendation, and he said SSGA has offered to slightly reduce the management fees in those two programs if the ARM Board were to move to the other share class of each investment. He said that would amount to about \$60,000 in annualized fee savings based on current market values, but the key motivation is to regain access to securities lending revenue, which they estimate will be \$1.15 million per year.

MR. MITCHELL read the recommendation: "Staff recommends the Alaska Retirement Management Board direct staff to contract with SSGA to transition its investments in the MSCI World Ex-U.S. IMI Index and the MSCI Emerging Markets Index for the defined benefit plans to the securities lending options offered for those mandates, subject to successful contract negotiations."

MS. HARBO so moved. MR. WILLIAMS seconded the motion.

MR. WEST commented, acknowledging that he had been a former securities lending agent, that he thinks this is a no-brainer. The 25-basis-point spread is still a good thing, and taking Treasuries as collateral is really sound. He said the utilization rate wouldn't be high, but they should take advantage of every free dollar they could get.

DR. JENNINGS' comment was read by MS. ALEXANDER: "I'm generally more skeptical of securities lending than your other advisors, but it is hard to turn your back on \$1 million a year in securities lending revenue."

MS. RYERSON said she would agree with staff's recommendation and with what DR. JENNINGS said.

A roll call vote was taken, and the recommendation passed unanimously.

E. U.S. Equity Guidelines Modification

This was taken up after the Legal Report, before the morning break on Thursday, June 18.

F. Domestic Fixed Income Guidelines Update

MR. MITCHELL said the domestic fixed income guidelines apply to the internally managed core fixed income portfolio, and the benchmark is the Bloomberg Barclays Aggregate Index, the investment-grade U.S.-dollar-only benchmark. He said that the guidelines include a constraint on the proportion of the portfolio that is managed internally that can be rated Triple B, which is the lowest credit rating that is still investment grade. He said there's been a migration of the index from about 8 percent Triple B to 14 percent Triple B over the last 10 years, and there is the potential to see an increase in the proportion of Triple B securities that is comprised in the index.

MR. MITCHELL explained that as the proportion of Triple B Securities has increased, the 15 percent constraint has become more binding on internal staff. He said the packet contained a red-lined version of the fixed income guidelines and a black-lined version that they are submitting for approval. The revised guidelines change the constraint to 5 percent relative to the weight in the aggregate. He said that for example, the proportion of Triple B securities is 14 percent of the index. By adopting this change, the constraint would move from 15 percent to 19 percent of the index, and going forward would flow with the proportion of Triple B securities that are in the aggregate index. MR. MITCHELL said that the changes also encompass some cleanup in the language; for example, there is also the ability for staff to invest in high yield securities up to 5 percent, but that is not in the section of the investment guidelines called "Portfolio Constraints," so they have made some changes that they believe makes the application of the investment guidelines with respect to the credit ratings more clear.

MR. MITCHELL said staff recommends the ARM Board approve Resolution 2020-06 which adopts the revised Domestic Fixed Income Investment Guidelines.

MS. HARBO so moved. COMMISSIONER MAHONEY seconded the motion.

A roll call vote was taken, and the resolution was adopted unanimously.

UNFINISHED BUSINESS

MR. WEST said he's been to several fiduciary presentations as an ERISA plan person in his former life, and those presentations were usually given by or sponsored by companies that sold fiduciary insurance coverage. He said they always went over not only the responsibilities of fiduciaries, but also the consequences of failing to execute those responsibilities faithfully, and of course there are civil and criminal penalties on the ERISA side. He said he asked MR. GOERING what are the similar things here, and since he isn't aware that they have fiduciary insurance coverage, does the state protect them if they make a stupid mistake? MR. GOERING suggested he bring that up so that others could hear his answer and it could be put on the record.

CHAIR JOHNSON said he thought that was a very good question, and he suggested that it be brought up as an agenda item at a future Operations Committee or Audit Committee meeting; MR. BRICE agreed that a conversation in Operations would be good. MR. GOERING agreed to prepare a presentation on the subject for the Operations Committee meeting in September.

NEW BUSINESS

None.

OTHER MATTERS TO PROPERLY COME BEFORE THE BOARD

CHAIR JOHNSON said to MR. MITCHELL that he understood that it was his intention to retire before the next Board meeting in September, and asked if he had any closing remarks.

MR. MITCHELL said his plan was to work through the close on September 11th, so he would not be in this position at the next Board meeting. He said he was very grateful and humbled by having had this position, and it has been a true honor. He said he has worked with exceptional people, among both staff and Trustees, and he will treasure these experiences.

PUBLIC/MEMBER COMMENTS

DOUG WOODEBY said that he listened with interest to the two presentations on ESG, as well as the presentations by MR. GOERING and by ISS staff, and while he would like to support explicit incorporation of ESG considerations if statutes allowed it, he wanted to make clear that his testimony and that of other members of his group were directed explicitly at fiduciary concerns. He said they are aware of their focus on statutes addressing prudent investing.

MR. WOODEBY said that regarding the presentation by MR. HANNA, on passive investments where he recommends no divestment of specific sectors or industries, his three arguments may have merit in general, but are not persuasive in the context of fossil fuel investments. He said regarding the first argument, that divestment would decrease diversification, that pension funds generally have somewhere around 6 percent of assets in fossil fuel investments, so divesting and moving funds to alternatives wouldn't impact diversification. MR. WOODEBY said in response to the second argument, that industries go up and down unpredictably, fossil fuels are on a downward slide toward stranded assets, and BP's recent admission is likely to be the industry norm. MR. WOODEBY addressed MR. HANNA'S third argument, that the broad markets are efficient at putting a price on risk, saying that for fossil fuels, there is increasing risk and diminishing rewards, and he wondered if this might have more to do with the challenge of moving away from standard suites of indexed funds.

MR. WOODEBY said that his three counterarguments apply to active investments as well and are independent of ESG concerns. He said that remaining invested in fossil fuels is a fiduciary mistake and a disservice to beneficiaries; those investments are high risk and low return, and the data he presented at the May meeting supports their claim that divestments from fossil fuel assets meets fiduciary responsibilities. MR. WOODEBY stated that there are financial analysis of returns for other major public pension funds in New York, Colorado, and California demonstrating that those funds have foregone billions of returns over the past decade because they remain in fossil fuel industries, and there is no reason to believe that Alaska's funds have performed differently.

CHAIR JOHNSON thanked MR. WOODEBY for his carefully considered commentary.

INVESTMENT ADVISORY COUNCIL COMMENTS

DR. JERRY MITCHELL said that those who read the financial press would have noticed that the CIO of CalPERS, the California public fund, said that he was going to dramatically increase their commitment to private equity and increase leverage on the portfolio. He said those are two pretty big statements, and to the extent that CalPERS is considered a thought leader in the field, he thinks it is incumbent on other public funds to consider both of those issues.

DR. MITCHELL commented on factor investing that he is pleased that it has become a significant part of the ARM Board portfolio, but he sometimes bristles at the word “scientific” in Scientific Beta because it implies that there is something mathematical or axiomatic about that form of investing, which isn’t really so. He said it is just another form of highly disciplined active management, and he would indicate to Trustees that it’s not a sure thing.

DR. MITCHELL said that BOB MITCHELL brought to the job intelligence, professionalism, dedication, and high ethics, but for him, one of Bob’s greatest contributions has been his mentoring and encouragement to the staff and his willingness to give the staff greater responsibilities and greater visibility to the Board. He said if he were to start his investment career all over again, he didn’t think he could look for a better job than to work for BOB MITCHELL, and he thanked him.

MS. RYERSON said that one Trustee had mentioned how much they missed the informal interaction between Trustees and the IAC and staff, and she seconded that. She said she thinks that is one of the best ways people can learn from each other and share ideas, and she hopes by September they won’t be meeting on the computer anymore.

MS. RYERSON also complimented BOB MITCHELL, saying that even though she has only worked with him for less than six months, he’s been one of the best CIOs she has worked with. She said that the ARM Board was very lucky to have had him for as long as they did, and filling his shoes will be very difficult.

TRUSTEE COMMENTS

MS. HARBO said that DR. MITCHELL said some of the things she was going to say, but she would say them again because they can’t be said too many times. She thanked BOB MITCHELL for his leadership of a great staff and for the building of a very strong team. She said he had given his team members the opportunity to present different asset classes and to interact with the Trustees, which is very important, and he had simplified the portfolio, reducing both the number of managers and the cost to the system, and given the most thoughtful presentations to Trustees. She said MR. MITCHELL was always prepared, professional, and patient. She wished him the best and said she hopes he will come see her sometime in Fairbanks.

MR. WEST echoed what DR. MITCHELL said in that BOB MITCHELL is almost unique in not having the ego that would be expected of one in his position. MR. WEST said MR. MITCHELL is very approachable and willing to discuss and take a different look at things, which is a rare, unique quality. He said he doesn’t think they would ever be able to replace MR. MITCHELL, and he has

greatly enjoyed working with him and will really miss him.

MR. BRICE offered a quick thank-you to BOB MITCHELL for all his dedication, not only to the beneficiaries of the fund but to the State of Alaska.

CHAIR JOHNSON said that he had the pleasure of working with MR. MITCHELL as the counsel for the ARM Board, and before that the ASPIB, and during that time, and subsequently as a Trustee, he had grown to highly respect everything about his efforts. CHAIR JOHNSON said he would really miss MR. MITCHELL.

MR. BOB MITCHELL thanked everyone for their sentiments and kind words. He said the Board has a very talented staff; he said the CIO sometimes takes credit for the work that his staff does, and a lot of his success had been due to the strong team that is now in place. He said he has confidence in that team, and he knows the Board does too, and he thinks they are well positioned going forward from a staff perspective.

FUTURE AGENDA ITEMS

CHAIR JOHNSON noted that the point about fiduciary insurance coverage raised by MR. WEST would be handled in a future Operations Committee meeting, and there were no other future agenda items to note.

ADJOURNMENT

There being no objection and no further business to come before the board, the meeting was adjourned at 12:34 p.m. on June 19, 2020, on a motion made by MR. BRICE and seconded by MS. HARBO.

Chair of the Board of Trustees
Alaska Retirement Management Board

ATTEST:

Corporate Secretary

Note: An outside contractor recorded the meeting and prepared the summary minutes. For in-depth discussion and more presentation details, please refer to the recording of the meeting and presentation materials on file at the ARMB office.

ALASKA RETIREMENT MANAGEMENT BOARD
STAFF REPORT
Division of Retirement & Benefits Report
September 17, 2020

Summary of Monthly Billings – Buck

Attached for your information are the quarterly payments related to actuarial services provided by the Division's consulting actuary, Buck.

Items listed represent regular and non-regular costs incurred under our current contract.

The listed costs are charged to the System or Plan noted on the column headings.

Summary through the twelve months ended June 30, 2020

New for this quarter is the JRS alternative FY 22 contribution rate, effective of non-annual additional state contributions, and new asset allocation.

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT: Summary of Monthly Billings -
Buck
DATE: September 17, 2020

ACTION: _____
INFORMATION: **X**

BACKGROUND:

AS 37.10.220(a)(8) prescribes that the Alaska Retirement Management Board (Board) “coordinate with the retirement system administrator to have an annual actuarial valuation of each retirement system prepared to determine system assets, accrued liabilities, and funding ratios....”

As part of the oversight process, the Board has requested that the Division of Retirement & Benefits provide quarterly summary updates to review billings and services provided for actuarial valuations and other systems’ request.

STATUS:

Attached are the summary totals for the twelve months ended June 30, 2020.

Buck
Billing Summary
For the Three Months Ended September 30, 2019

	<u>PERS</u>	<u>TRS</u>	<u>JRS</u>	<u>NGNMRS</u>	<u>EPORS</u>	<u>AHF</u>	<u>RHF</u>	<u>SBS</u>	<u>DCP</u>	<u>TOTAL</u>
Actuarial valuations	\$ 112,879	93,380	16,948	14,876	-	-	-	-	-	\$ 238,083
KPMG audit information request	6,192	2,518	45	177	-	-	-	-	-	8,932
ARMB presentations and meeting attendance	9,270	3,768	69	265	-	-	-	-	-	13,372
FY20 final PERS/TRS contribution rates	8,780	3,563	-	-	-	-	-	-	-	12,343
Unfunded liability article	2,918	1,187	21	87	-	-	-	-	-	4,213
FY20 AlaskaCare rates review	-	-	-	-	-	-	6,786	-	-	6,786
EGWP cost savings analysis	4,951	1,813	13	-	-	-	29	-	-	6,806
Actuarial dashboard	1,576	639	12	45	-	-	1,984	-	-	4,256
Misc emails and phone calls	1,129	798	1	53	-	-	-	-	-	1,981
TOTAL	\$ 147,695	107,666	17,109	15,503	-	-	8,799	-	-	\$ 296,772
For the Three Months Ended September 30, 2018	\$ 242,349	98,967	5,593	16,577	-	-	-	-	-	\$ 363,486

For the Three Months Ended December 31, 2019

	<u>PERS</u>	<u>TRS</u>	<u>JRS</u>	<u>NGNMRS</u>	<u>EPORS</u>	<u>AHF</u>	<u>RHF</u>	<u>SBS</u>	<u>DCP</u>	<u>TOTAL</u>
Actuarial Valuations	\$ 235,644	117,925	12,465	4,013	-	-	-	-	-	\$ 370,047
KPMG audit information request	1,904	774	14	54	-	-	-	-	-	2,746
ARMB presentations and meeting attendance	27,015	10,999	200	773	-	-	-	-	-	38,987
FY20 AlaskaCare rates review	-	-	-	-	-	-	5,744	-	-	5,744
GASB valuation reports 67/68/74/75 (PERS/TRS/JRS/NGNMRS)	9,761	7,717	4,484	2,882	-	-	-	-	-	24,844
EGWP cost savings analysis	618	226	2	-	-	-	3	-	-	849
TOTAL	\$ 274,942	137,641	17,165	7,722	-	-	5,747	-	-	\$ 443,217
For the Three Months Ended December 31, 2018	\$ 228,137	112,943	3,183	24,064	-	-	-	-	-	\$ 368,327

For the Three Months Ended March 31, 2020

	<u>PERS</u>	<u>TRS</u>	<u>JRS</u>	<u>NGNMRS</u>	<u>EPORS</u>	<u>AHF</u>	<u>RHF</u>	<u>SBS</u>	<u>DCP</u>	<u>TOTAL</u>
GASB valuation reports 67/68/74/75 (PERS/TRS/JRS/NGNMRS)	34,883	27,886	1,252	1,947	-	-	-	-	-	65,968
GASB 75 - EGWP as a plan change	1,853	679	5	-	-	-	10	-	-	2,547
GASB 68 allocation	719	314	-	-	-	-	-	-	-	1,033
Aetna litigation support	1,029	377	3	6	-	-	-	-	-	1,415
Repeal of Cadillac tax 6/30/19 valuations	5,111	1,871	-	-	-	-	-	-	-	6,982
JRS - effect of 0% salary assumptions for 2 years	-	-	10,017	-	-	-	-	-	-	10,017
NGNMRS asset allocation	-	-	-	708	-	-	-	-	-	708
Senate Finance Committee attendance and preparation	3,430	1,393	-	-	-	-	-	-	-	4,823
Misc emails and phone calls	4,536	1,977	-	4,460	-	-	-	-	-	10,973
TOTAL	\$ 51,561	34,497	11,277	7,121	-	-	10	-	-	\$ 104,466
For the Three Months Ended March 31, 2019	\$ 155,081	71,479	8,091	28,346	-	-	24	-	-	\$ 263,021

For the Three Months Ended June 30, 2020

	PERS	TRS	JRS	NGNMRS	EPORS	AHF	RHF	SBS	DCP	TOTAL
KPMG audit information request	4,915	1,997	36	141	-	-	-	-	-	7,089
ARMB presentations and meeting attendance	9,536	3,876	70	272	-	-	-	-	-	13,754
ARMB meeting follow-up request	3,363	1,368	24	96	-	-	-	-	-	4,851
JRS alternative FY 22 contribution rate	-	-	4,327	-	-	-	-	-	-	4,327
Effect of non-annual additional state contributions	5,508	2,237	-	-	-	-	-	-	-	7,745
New asset allocations	1,304	1,303	-	2,400	-	-	-	-	-	5,007
Misc emails and phone calls	1,134	460	9	32	-	-	-	-	-	1,635
TOTAL	\$ 25,760	11,241	4,466	2,941	-	-	-	-	-	\$ 44,408
For the Three Months Ended June 30, 2019	\$ 81,173	60,483	7,808	8,555	-	-	-	-	-	\$ 158,019

Summary through the Twelve Months Ended June 30, 2020

	PERS	TRS	JRS	NGNMRS	EPORS	AHF	RHF	SBS	DCP	TOTAL
Actuarial valuations	\$ 348,523	211,305	29,413	18,889	-	-	-	-	-	\$ 608,130
KPMG audit information request	13,011	5,289	95	372	-	-	-	-	-	18,767
ARMB presentations and meeting attendance	45,821	18,643	339	1,310	-	-	-	-	-	66,113
ARMB meeting follow-up request	3,363	1,368	24	96	-	-	-	-	-	4,851
FY20 final PERS/TRS contribution rates	8,780	3,563	-	-	-	-	-	-	-	12,343
Effect of non-annual additional state contribution	5,508	2,237	-	-	-	-	-	-	-	7,745
Unfunded liability article	2,918	1,187	21	87	-	-	-	-	-	4,213
FY20 AlaskaCare rates review	-	-	-	-	-	-	12,530	-	-	12,530
GASB valuation reports 67/68/74/75 (PERS/TRS/JRS/NGNMRS)	44,644	35,603	5,736	4,829	-	-	-	-	-	90,812
GASB 68 allocation	719	314	-	-	-	-	-	-	-	1,033
EGWP cost savings analysis	5,569	2,039	15	-	-	-	32	-	-	7,655
GASB 75 - EGWP as a plan change	1,853	679	5	-	-	-	10	-	-	2,547
Aetna litigation support	1,029	377	3	6	-	-	-	-	-	1,415
Repeal of Cadillac tax 6/30/19 valuations	5,111	1,871	-	-	-	-	-	-	-	6,982
JRS - effect of 0% salary assumptions for 2 years	-	-	10,017	-	-	-	-	-	-	10,017
JRS alternative FY 22 contribution rate	-	-	4,327	-	-	-	-	-	-	4,327
NGNMRS asset allocation	-	-	-	708	-	-	-	-	-	708
New asset allocation	1,304	1,303	-	2,400	-	-	-	-	-	5,007
Senate Finance Committee attendance and preparation	3,430	1,393	-	-	-	-	-	-	-	4,823
Actuarial dashboard	1,576	639	12	45	-	-	1,984	-	-	4,256
Misc emails and phone calls	6,799	3,235	10	4,545	-	-	-	-	-	14,589
TOTAL	\$ 499,958	291,045	50,017	33,287	-	-	14,556	-	-	888,863
Summary through the Twelve Months June 30, 2019	\$ 706,740	343,872	24,675	77,542	-	-	24	-	-	1,152,853

ALASKA RETIREMENT MANAGEMENT BOARD

STAFF REPORT

Division of Retirement & Benefits Report September 17, 2020

Retirement System Membership Activity as of June 30, 2020

Attached for your information are the membership statistics for the quarter ending

- June 30, 2020

We see a net decrease in active members from last quarter, primarily in TRS DCR members:

- PERS Tier 1-3 active members decreased from 11,654 to 11,162 or a decrease of 492.
- PERS DCR active members decreased from 23,559 to 23,378 or a decrease of 181.
- PERS active members had a decrease of 673.

- TRS Tier 1-2 active members decreased from 4,130 to 3,812 or a decrease of 318.
- TRS DCR active members decreased from 6,149 to 5,569 or a decrease of 580.
- TRS active members had a decrease of 898.

Retiree counts have changed in the following manner:

- PERS retirees increased from 35,998 to 36,269 or an increase of 271 (all tiers).
- TRS retirees decreased from 13,110 to 13,089 or a decrease of 21 (all tiers).

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT: Retirement System Membership Activity
as of June 30, 2020

ACTION: _____

DATE: September 17, 2020

INFORMATION: X

BACKGROUND:

Information related to PERS, TRS, JRS, NGNMRS, SBS, and DCP membership activity as requested by the Board.

STATUS:

Membership information as of June 30, 2020.

MEMBERSHIP STATISTICS AS OF SEPTEMBER 30, 2019

	PERS						TRS					JRS	NGNMRS	SBS	DCP
	DB				DCR	SYSTEM	DB			DCR	SYSTEM				
	Tier I	Tier II	Tier III	Total	Tier IV	TOTAL	Tier I	Tier II	Total	Tier III	TOTAL				
Active Members	942	2,923	8,078	11,943	22,663	34,606	267	3,883	4,150	6,113	10,263	71	n/a	20,209	6,181
Terminated Members															
Entitled to Future Benefits	308	1,891	3,172	5,371	1,566	6,937	30	646	676	626	1,302	2	n/a	26,885	5,393
Other Terminated Members	1,053	2,092	7,566	10,711	13,729	24,440	242	1,532	1,774	2,418	4,192	1	n/a	n/a	n/a
Total Terminated Members	1,361	3,983	10,738	16,082	15,295	31,377	272	2,178	2,450	3,044	5,494	3	n/a	26,885	5,393
Retirees & Beneficiaries	22,876	8,432	4,388	35,696	100	35,796	10,210	2,903	13,113	32	13,145	142	715	n/a	n/a
Managed Accounts	n/a	n/a	n/a	n/a	5,752	5,752	n/a	n/a	n/a	1,528	1,528	n/a	n/a	2,395	2,601
Retirements - 1st QTR FY20	84	181	145	410	13	423	63	185	248	9	257	1	15	n/a	n/a
Full Disbursements - 1st QTR FY20	21	72	109	202	524	726	5	11	16	111	127	-	n/a	667	189
Partial Disbursements - 1st QTR FY20	n/a	n/a	n/a	n/a	99	99	n/a	n/a	n/a	27	27	n/a	n/a	1,296	617

MEMBERSHIP STATISTICS AS OF DECEMBER 31, 2019

	PERS						TRS					JRS	NGNMRS	SBS	DCP
	DB				DCR	SYSTEM	DB			DCR	SYSTEM				
	Tier I	Tier II	Tier III	Total	Tier IV	TOTAL	Tier I	Tier II	Total	Tier III	TOTAL				
Active Members	932	2,896	8,022	11,850	23,225	35,075	264	3,880	4,144	6,143	10,287	72	n/a	19,930	6,175
Terminated Members															
Entitled to Future Benefits	291	1,860	3,170	5,321	1,571	6,892	29	633	662	614	1,276	2	n/a	27,576	5,678
Other Terminated Members	1,044	2,081	7,548	10,673	13,876	24,549	241	1,525	1,766	2,437	4,203	1	n/a	n/a	n/a
Total Terminated Members	1,335	3,941	10,718	15,994	15,447	31,441	270	2,158	2,428	3,051	5,479	3	n/a	27,576	5,678
Retirees & Beneficiaries	22,830	8,516	4,467	35,813	110	35,923	10,167	2,926	13,093	33	13,126	144	716	n/a	n/a
Managed Accounts	n/a	n/a	n/a	n/a	5,823	5,823	n/a	n/a	n/a	1,532	1,532	n/a	n/a	2,565	2,793
Retirements - 2nd QTR FY20	62	136	122	320	10	330	7	26	33	1	34	2	32	n/a	n/a
Full Disbursements - 2nd QTR FY20	17	50	92	159	411	570	3	14	17	67	84	-	n/a	536	206
Partial Disbursements - 2nd QTR FY20	n/a	n/a	n/a	n/a	101	101	n/a	n/a	n/a	29	29	n/a	n/a	1,559	721

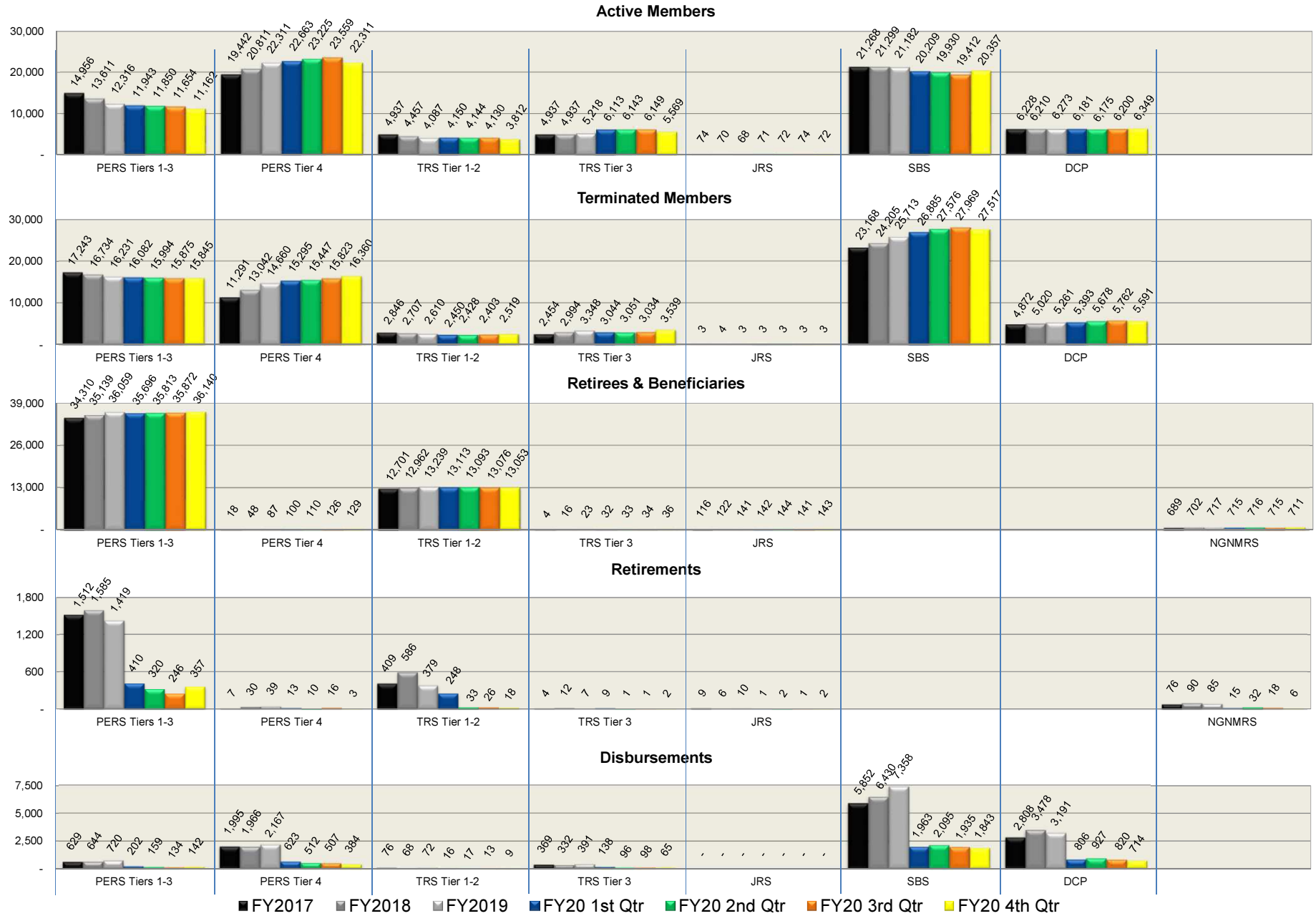
MEMBERSHIP STATISTICS AS OF MARCH 31, 2020

	PERS						TRS					JRS	NGNMRS	SBS	DCP
	DB				DCR	SYSTEM	DB			DCR	SYSTEM				
	Tier I	Tier II	Tier III	Total	Tier IV	TOTAL	Tier I	Tier II	Total	Tier III	TOTAL				
Active Members	897	2,819	7,938	11,654	23,559	35,213	256	3,874	4,130	6,149	10,279	74	n/a	19,412	6,200
Terminated Members															
Entitled to Future Benefits	279	1,825	3,157	5,261	1,592	6,853	27	623	650	601	1,251	2	n/a	27,969	5,762
Other Terminated Members	1,038	2,068	7,508	10,614	14,231	24,845	240	1,513	1,753	2,433	4,186	1	n/a	n/a	n/a
Total Terminated Members	1,317	3,893	10,665	15,875	15,823	31,698	267	2,136	2,403	3,034	5,437	3	n/a	27,969	5,762
Retirees & Beneficiaries	22,730	8,590	4,552	35,872	126	35,998	10,136	2,940	13,076	34	13,110	141	715	n/a	n/a
Managed Accounts	n/a	n/a	n/a	n/a	5,811	5,811	n/a	n/a	n/a	1,519	1,519	n/a	n/a	2,635	2,453
Retirements - 3rd QTR FY20	48	100	98	246	16	262	8	18	26	1	27	1	18	n/a	n/a
Full Disbursements - 3rd QTR FY20	8	46	80	134	402	536	1	12	13	65	78	-	n/a	492	179
Partial Disbursements - 3rd QTR FY20	n/a	n/a	n/a	n/a	105	105	n/a	n/a	n/a	33	33	n/a	n/a	1,443	641

MEMBERSHIP STATISTICS AS OF JUNE 30, 2020

	PERS						TRS					JRS	NGNMRS	SBS	DCP
	DB				DCR	SYSTEM	DB			DCR	SYSTEM				
	Tier I	Tier II	Tier III	Total	Tier IV	TOTAL	Tier I	Tier II	Total	Tier III	TOTAL				
Active Members	823	2,626	7,713	11,162	23,378	34,540	200	3,612	3,812	5,569	9,381	72	n/a	20,357	6,349
Terminated Members															
Entitled to Future Benefits	279	1,798	3,193	7,208	1,717	6,987	48	726	774	782	1,556	2	n/a	27,517	5,591
Other Terminated Members	1,030	2,057	7,488	10,575	14,643	25,218	240	1,505	1,745	2,757	4,502	1	n/a	n/a	n/a
Total Terminated Members	1,309	3,855	10,681	15,845	16,360	32,205	288	2,231	2,519	3,539	6,058	3	n/a	27,517	5,591
Retirees & Beneficiaries	22,675	8,759	4,706	36,140	129	36,269	10,098	2,955	13,053	36	13,089	143	711	n/a	n/a
Managed Accounts	n/a	n/a	n/a	n/a	5,860	5,860	n/a	n/a	n/a	1,523	1,523	n/a	n/a	2,729	2,558
Retirements - 4th QTR FY20	69	160	128	357	3	360	2	16	18	2	20	2	6	n/a	n/a
Full Disbursements - 4th QTR FY20	10	64	68	142	320	462	-	9	9	55	64	-	n/a	383	121
Partial Disbursements - 4th QTR FY20	n/a	n/a	n/a	n/a	64	64	n/a	n/a	n/a	10	10	n/a	n/a	1,460	593

Alaska Division of Retirement and Benefits
FY 2020 QUARTERLY REPORT OF MEMBERSHIP STATISTICS
 Annual & Quarterly Trends as of June 30, 2020



LEGEND

- Active Members** - All active members at the time of the data pull,
except SBS & DCP, which are counts of contributors during the final quarter of each period.
- Terminated Members** - All members who have terminated without refunding their account,
except SBS & DCP, which are counts of members with balances at the end of the period less active members.
- Retirees & Beneficiaries** - All members who have retired from the plans, including beneficiaries eligible for benefits.
- Managed Accounts** - Individuals who have elected to participate in the managed accounts option with Empower.
- Retirements** - The number of retirement applications processed.
- Full Disbursements** - All types of disbursements that leave the member balance at zero.
- Partial Disbursements** - All types of disbursements that leave the member balance above zero. If more than one partial disbursement is completed during the quarter for a member, they are counted only once for statistical purposes.



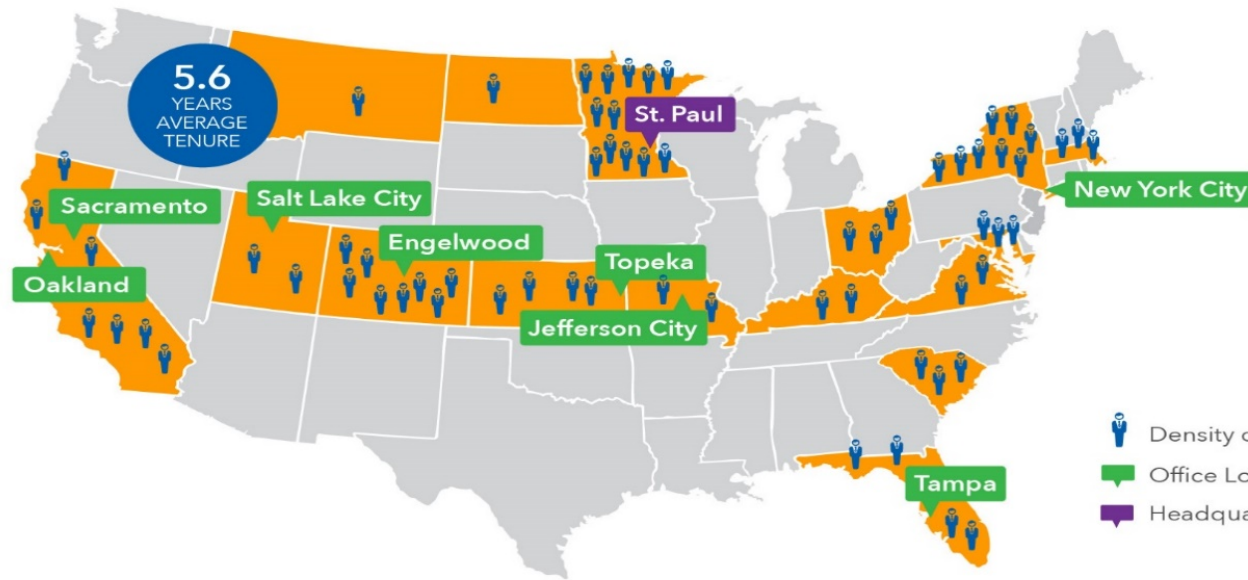
Alaska Retirement Management Board

September 17, 2020

- A U.S. based software solutions and integration company launched in 2004
- Over 800 employees with public sector implementation experience
- 13 offices across 4 countries
- 26 successful Pension Project supporting over 500 Billion USD in assets
- Singularly focused on providing software solutions for Benefits Administration - Pension Plans and Unemployment Insurance

9 U.S. OFFICES • 285 Employees

4 INT. OFFICES • 533 Employees



WHAT ROLES DO OUR EMPLOYEES HOLD?



Business Analysts (85)



Business Development (11)



Project Managers (40)



Developers & Testers (550)



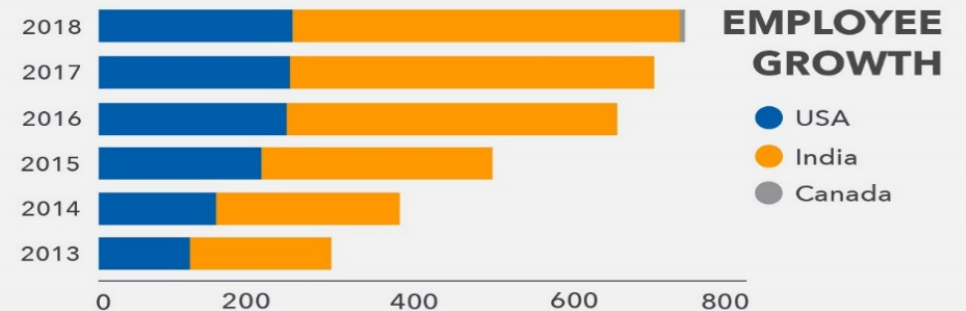
Training (24)

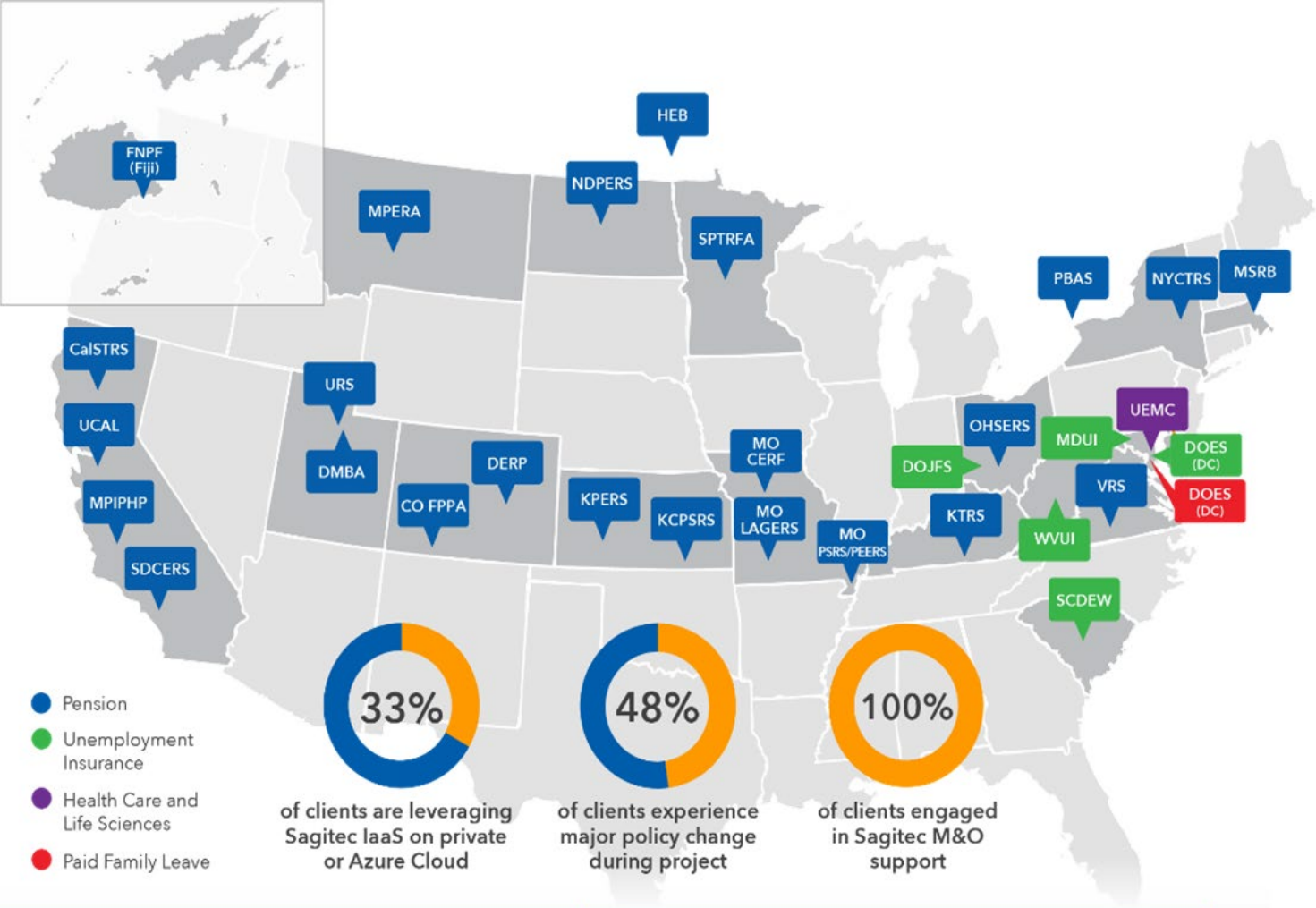


Infrastructure (19)



Finance & Admin (28)





16K employers reporting wage/contribution/tax information via self service portals

5 MILLION participants/claimants using self-service portals

- Founded on the idea that our customers' solutions should not face technical obsolescence
- We excel at adapting new technology to the very specific and unique needs of pension plans
- We refuse to let our customers fail
- It's a great place to work

- Sagitec will be a long-time partner with DRB
- Team engaged with DRB is experienced and has proven track record
- Our solution never becomes obsolete
- Sagitec's focus is on DRB business of serving members
- We consider DRB staff and wider member community to be our customers
- Solution will be positioned to incorporate technology advances

April – July 2020	Project Inception
July – November 2020	Requirements Confirmation
November 2020 – October 2022	<ul style="list-style-type: none">• Design, Development and Testing of<ul style="list-style-type: none">• BEARS Implementation• ECM/FileNet Implementation• Intacct Implementation• Data Conversion and Cleansing
October 2022 – August 2023	<ul style="list-style-type: none">• System Performance Testing• System Integration Testing• User Acceptance Testing• Training
August 2023 – October 2023	<ul style="list-style-type: none">• User Acceptance Testing• User Training
October 2023	<ul style="list-style-type: none">• Cutover• Go-Live

- Requirements confirmation with Subject Matter Experts (SMEs)
- Fit/Gap Elaboration
- Elaboration sessions include demonstration of Neospin solution
- Designs and Business Rules validated by SMEs
- The focus is on what needs to be done to meet business needs

- Before Going Live
 - Three Pilot Demonstrations
 - Early exposure to Neospin solution using DRB data
- User Acceptance Testing
 - Executed by DRB users
 - Includes life-cycle scenarios

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT: FY2022 ARMB Budget Proposal

ACTION: X

DATE: September 17, 2020

INFORMATION:

BACKGROUND:

Pursuant to its charter, the Alaska Retirement Management Board (ARMB) Operations Committee meets at least annually to review the actual expenditures in the immediately preceding fiscal year budget; consider and review the current fiscal year budget as approved by the legislature; and review a proposed budget for the next fiscal year to make appropriate recommendations for action to the Board. The ARMB budget is presented in the Alaska Budget System in two budget components: ARMB Operations component and the ARMB Custody and Management component. For presentation purposes, the attached schedule combines these into one schedule for FY2018 through FY2020 actuals and FY2021 and FY2022 projected and proposed amounts.

STATUS:

Personal Services Costs

The ARMB purchases personal services from the Treasury division each year. The FY2021 budget includes \$6.5 million for personal services. The FY2022 proposed amount includes increases to accommodate potential salary increases funded by ARMB plans.

Investment Management Fees

Total appropriated public management fees decreased from \$34.6 million in FY2019 to \$23.7 million in FY2020. This decrease is a result of moving assets managed by external firms to internally managed mandates and consolidating external mandates. Total unappropriated private investment fees (netted from investments and historically not included in budget appropriations) decreased from \$65.1 million in FY2019 to \$46 million primarily due to the divestment of the Absolute Return asset class. A summary of actual management fees for FY2012-2020, with an estimate for FY2021 is attached.

Other Budgeted Costs

Other costs reflected in the attached working budget are based on prior year amounts and expected increases or decreases that are currently known. Sufficient FY2021 budget authority exists for these costs. Similar amounts are anticipated to be included in the FY2022 budget proposal during discussions with the OMB and Legislature.

RECOMMENDATION:

The Alaska Retirement Management Board adopt the FY2022 Proposed Budget as attached, with the understanding that components will be subject to appropriation by OMB and the Legislature.

Attachments: ARMB Working FY22 Budget and Investment Management Fee Summary 2012-2021.

State of Alaska
FY22 ARMB Working

		FY17 Actuals	FY18 Actuals	FY19 Actuals	FY20 Actuals	FY20 Authorized	FY21 Projected	FY22 Proposed	\$ Change from FY21
Personal Services	ARMB Personal Services	4,779,823	5,031,087	6,049,367	6,074,893	6,534,100	6,538,700	6,669,474	
	Board/Staff	46,050	56,019	74,059	46,529	75,000	75,000	75,000	
		4,825,873	5,087,106	6,123,426	6,121,421	6,609,100	6,613,700	6,744,474	130,774
Travel	Employee Travel	118,869	150,895	100,259	21,422	27,500	100,000	100,000	
	Other Travel Costs	432	18,403	1,073	335	500	500	500	
	Non Employee Travel	27,710	18,654	34,714	4,768	22,000	35,000	35,000	
		147,012	187,952	136,046	26,525	50,000	135,500	135,500	0
Management, Consulting & Custody	Custody Fees	1,446,493	1,388,486	1,454,178	1,468,319	1,497,000	1,500,000	1,500,000	
	External Public Investment Fees	46,645,967	44,508,963	34,357,984	23,653,586	47,673,000	42,650,000	32,650,000	
	Unbudgeted Private Investment Fees	62,144,558	60,309,727	65,099,788	46,015,033	60,000,000	50,000,000	50,000,000	
	Investment/Performance Consultant	1,062,304	807,158	871,301	736,695	830,000	850,000	850,000	
		111,299,323	107,014,334	101,783,251	71,873,634	110,000,000	95,000,000	85,000,000	-10,000,000
Investment Information Systems	Bloomberg	457,660	498,964	506,871	420,960	500,000	510,000	510,000	
	CreditSights	3,829	5,804	6,990	13,347	7,000	15,000	15,000	
	FactSet	366,951	354,858	29,567					
	ISS Proxy Voting	48,080	51,595	48,110	48,110	51,000	51,000	51,000	
	Moody's	25,209	38,029	40,397	70,806	41,000	70,000	70,000	
	Other Investment Costs	5,741	49,436	28,038	10,324	29,000	14,000	14,000	
	Risk Management products	75,000	87,050	95,018	59,619	96,000	100,000	100,000	
	Standard and Poors Financial Services	165,391	164,643	402,067	423,195	450,000	450,000	450,000	
	Terminated Investment Services	115,153	26,313	14,096					
	TradeWeb	7,096	10,613	10,401	17,084	11,000	20,000	20,000	
	Yieldbook	31,720	46,640	38,633	68,600	46,000	70,000	70,000	
		1,301,829	1,333,944	1,220,189	1,132,046	1,231,000	1,300,000	1,300,000	0
Other Professional Services	Actuarial Services	226,249	246,634	221,085	235,707	250,000	250,000	450,000	
	DOA Finance (IRIS, ALDER, ADA, INS)	95,080	33,161	33,888	37,214	50,000	50,000	50,000	
	DOA Human Resources	17,593	20,400	22,275	22,905	21,000	21,000	21,000	
	DOR ASD/OOC Support Service	277,926	562,758	244,898	110,923	290,000	200,000	200,000	
	Financial Audit	77,895	91,670	95,832	96,000	96,000	100,000	100,000	
	International Tax Preparation	10,195	9,695	13,000	6,000	10,500	10,500	10,500	
	Investment Advisory Council	103,134	98,909	108,673	58,456	130,000	130,000	130,000	
	IT Support	37,797	39,296	125,019	130,378	126,000	175,000	175,000	
	Legal	62,692	83,687	132,370	100,506	200,000	150,000	150,000	
	Other Professional Services	69,512	5,466	5,135	936	6,200	6,500	6,500	
		978,074	1,191,678	1,002,177	799,025	1,179,700	1,093,000	1,293,000	200,000
Subscriptions and Training	Books and Educational Supplies	8,172	7,645	3,484	1,877	10,000	10,000	10,000	
	Memberships	18,000	15,790	12,402	6,698	18,000	15,000	15,000	
	News and Magazine Subscriptions	5,230	10,322	6,406	8,529	10,000	10,000	10,000	
	Training and Conferences	3,603	12,952	9,467	2,824	10,000	10,000	10,000	
		35,004	46,708	31,760	19,927	48,000	45,000	45,000	0
General Office Expenses	Building Related Expenses	139,717	148,212	161,207	157,342	165,000	165,000	165,000	
	Business Supplies	5,001	7,355	3,648	2,278	7,000	7,000	7,000	
	Equipment and Machinery	10,115	9,544	5,971	3,967	10,000	10,000	10,000	
	Information Technology Equipment	784	18,003	11,976	23,275	35,000	20,000	20,000	
	Mail/Courier Services	7,400	4,676	5,028	3,114	7,500	7,500	7,500	
	Public Notices	4,051	1,652	2,775	1,683	7,500	7,500	7,500	
	Software	12,233	68,576	21,173	41,990	30,000	40,000	40,000	
	Telecommunications	67,386	72,439	43,674	37,666	50,000	50,000	50,000	
		246,687	330,458	255,451	271,316	312,000	307,000	307,000	0
Board Meeting Expenses	Board Meeting Expenses	54,772	75,074	58,509	20,771	75,000	75,000	75,000	
		54,772	75,074	58,509	20,771	75,000	75,000	75,000	0
Total all Expenses		118,888,574	115,267,253	110,610,808	80,264,664	119,504,800	104,569,200	94,899,974	-9,669,226
	Investment fees and custody	111,299,323	107,014,334	101,783,251	71,873,634	110,000,000	95,000,000	85,000,000	-10,000,000
	Operations	7,589,251	8,252,919	8,827,557	8,391,030	9,504,800	9,569,200	9,899,974	330,774
Total all Expenses		118,888,574	115,267,253	110,610,808	80,264,664	119,504,800	104,569,200	94,899,974	-9,669,226

	Historic Manager Fees Paid, FY 12 to FY 21									
	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21 (Est.)
Broad Domestic Equity	\$ 10,043,289	\$ 11,559,501	\$ 13,243,266	\$ 12,654,891	\$ 11,730,056	\$ 14,459,724	\$ 12,319,726	\$ 8,391,869	\$ 1,163,922	\$ 1,008,560
Global Equity Ex-US	\$ 15,814,643	\$ 14,688,634	\$ 17,142,130	\$ 21,381,074	\$ 20,815,819	\$ 22,460,312	\$ 23,094,420	\$ 18,572,009	\$ 10,402,732	\$ 8,291,470
Alternative Equity/Opportunistic	\$ 3,796,483	\$ 3,454,480	\$ 1,512,333	\$ 3,012,605	\$ 2,055,605	\$ 2,162,504	\$ 9,094,818	\$ 7,633,781	\$ 7,733,434	\$ 6,177,645
Private Equity	\$ 7,666,847	\$ 6,653,443	\$ 7,453,571	\$ 7,793,757	\$ 9,328,973	\$ 11,765,183	\$ 12,260,133	\$ 14,350,011	\$ 14,277,305	\$ 17,680,433
Real Assets	\$ 19,100,864	\$ 23,608,330	\$ 24,670,853	\$ 25,175,085	\$ 27,820,023	\$ 28,648,117	\$ 29,761,682	\$ 30,083,965	\$ 24,764,107	\$ 21,317,404
Absolute Return	\$ 6,056,485	\$ 5,176,521	\$ 5,985,676	\$ 11,487,059	\$ 23,558,243	\$ 21,731,258	\$ 18,287,912	\$ 20,428,820	\$ -	\$ -
Fixed Income	\$ 3,335,470	\$ 3,685,272	\$ 4,143,522	\$ 5,010,475	\$ 5,928,825	\$ 7,390,994	\$ -	\$ 1,386	\$ 11,327,119	\$ 9,103,795
Total Fees	\$ 65,814,081	\$ 68,826,182	\$ 74,151,352	\$ 86,514,945	\$ 101,237,544	\$ 108,618,092	\$ 104,818,690	\$ 99,461,841	\$ 69,668,619	\$ 63,579,306
Shared										
Underlying gatekeeper fees.										
Year End Total Assets	\$16,242,119,030	\$18,075,627,711	\$21,171,071,086	\$23,989,926,930	\$23,068,284,972	\$25,122,989,358	\$26,162,960,813	\$26,720,672,995	\$26,517,235,705	\$26,861,015,191
Total Fees as a % of Assets	0.41%	0.38%	0.35%	0.36%	0.44%	0.43%	0.40%	0.37%	0.26%	0.24%

ALASKA RETIREMENT MANAGEMENT BOARD

STAFF REPORT

**Disclosure - Calendar Update
September 17, 2020**

The Disclosure Memorandum and new Communications Memorandum are included in the packet; no disclosure transactions require additional review or discussion.

The remaining 2020 calendar is attached and a copy of the 2021 ARMB Calendar. The ARMB website will be updated to reflect the most current calendars.

Nothing further to report.

ALASKA RETIREMENT MANAGEMENT BOARD
M E M O R A N D U M

To: ARMB Trustees
From: Stephanie Alexander
Date: September 4, 2020
Subject: Financial Disclosures

As required by AS 37.10.230 and Alaska Retirement Management Board policy relating to investment conduct and reporting, trustees and staff must disclose certain financial interests. We are hereby submitting to you a list of disclosures for individual transactions made by trustees and staff.

2nd Quarter – April 1, 2020 to June 30, 2020

Name	Position Title	Disclosure Type	Disclosure Date
Greg Samorajski	Deputy Commissioner	Equities, Fixed Income	04/22/2020
Tom Brice	ARMB Trustee	Equities	04/28/2020
Victor Djajalie	State Investment Officer	Equities	05/08/2020
Hunter Romberg	Treasury Accounting Staff	Equities	07/07/2020
Michelle Prebula	State Investment Officer	Equities	07/24/2020

ALASKA RETIREMENT MANAGEMENT BOARD
M E M O R A N D U M

To: ARMB Trustees
From: Stephanie Alexander
Date: September 4, 2020
Subject: Communications

Fall Quarter Requested Communications to Trustees

Name	Type of Communication	Contact Date
Suzanne Cohen	Email	07/21/2020, 08/11/2020
Mark Rosier	Email	07/28/2020
Suzanne Cohen	Email	08/27/2020

ALASKA RETIREMENT MANAGEMENT BOARD

2020 Meeting Calendar

DATE	LOCATION	DESCRIPTION
September 16 Wednesday	Telephonic	Actuarial Committee Audit Committee Operations Committee Defined Contribution Plan Committee
September 17-18 Thursday - Friday	Telephonic	Board of Trustees Meeting: <i>*Set Contribution Rates</i> <i>*Audit Results/Assets – Auditor</i> <i>*Approve Budget</i> <i>*Performance Measurement – 2nd Quarter</i> <i>*Real Estate Annual Plan</i> <i>*Real Assets Evaluation – Callan LLC</i> <i>*Manager Presentations</i>
October 12 Monday	Telephonic	Audit Committee
December 2 Wednesday	TBD	Actuarial Committee Audit Committee Operations Committee Defined Contribution Plan Committee
December 3-4 Thursday-Friday	TBD	Board of Trustees Meeting: <i>*Audit Report - DRB Auditor</i> <i>*Performance Measurement – 3rd Quarter</i> <i>*Manager Review (Questionnaire)</i> <i>*Private Equity Evaluation - Callan LLC</i> <i>*Review Private Equity Annual Plan</i> <i>*Manager Presentations</i>

ALASKA RETIREMENT MANAGEMENT BOARD

2021 Meeting Calendar

DATE	LOCATION	DESCRIPTION
March 17 Wednesday	Juneau, AK	Actuarial Committee Audit Committee Operations Committee Defined Contribution Plan Committee
March 18-19 Thursday-Friday	Juneau, AK	Board of Trustees Meeting: <i>*Performance Measurement – 4th Quarter</i> <i>*Buck Draft Actuarial Report/GRS Draft Actuary Certification</i> <i>*Capital Markets – Asset Allocation</i> <i>*Manager Presentations</i>
April 29 Thursday	TBD	Actuarial Committee <i>*As necessary: follow-up/additional discussion/questions on valuations</i>
April 30 Friday	TBD	Board of Trustees Meeting <i>*As necessary</i>
June 16 Wednesday	Juneau, AK	Actuarial Committee Audit Committee Operations Committee Defined Contribution Plan Committee
June 17-18 Thursday - Friday	Juneau, AK	Board of Trustees Meeting: <i>*Final Actuary Reports/Adopt Valuation</i> <i>*Adopt Asset Allocation</i> <i>*Performance Measurement - 1st Quarter</i> <i>*Manager Presentations</i>
September 22 Wednesday	Juneau, AK	Actuarial Committee Audit Committee Operations Committee Defined Contribution Plan Committee
September 23-24 Thursday - Friday	Juneau, AK	Board of Trustees Meeting: <i>*Set Contribution Rates</i> <i>*Audit Results/Assets – Auditor</i> <i>*Approve Budget</i> <i>*Performance Measurement – 2nd Quarter</i> <i>*Real Estate Annual Plan</i> <i>*Real Assets Evaluation – Callan LLC</i> <i>*Manager Presentations</i>
October 13 Tuesday (placeholder)	Telephonic	Audit Committee
December 1 Wednesday	Juneau, AK	Actuarial Committee Audit Committee Operations Committee Defined Contribution Plan Committee
December 2-3 Thursday-Friday	Juneau, AK	Board of Trustees Meeting: <i>*Audit Report - DRB Auditor</i> <i>*Performance Measurement – 3rd Quarter</i> <i>*Manager Review (Questionnaire)</i> <i>*Private Equity Evaluation - Callan LLC</i> <i>*Review Private Equity Annual Plan</i> <i>*Manager Presentations</i>
NOTE: Meeting locations and topics are subject to change.		



THE STATE
of **ALASKA**
GOVERNOR MIKE DUNLEAVY

Department of Revenue

ALASKA RETIREMENT MANAGEMENT BOARD

PO Box 110405
Juneau, Alaska 99811-0405
Main: 907.465.3749
Fax: 907.465.4397

Chief Investment Officer Report September 17, 2020

- Participant Communication
- Watch List
 - No managers currently on the watch list.
 - No managers are recommended for placement on the watch list.
- Private Equity – Committed to Resolute Fund V, LP
- Crestline Capital Increase
- Portfolio Transaction Update – period covering – June - August, 2020

Mitchell, Bob G (DOR)

Subject: Precious Metals investment options

From: Mark Rosier <rosier.mark.a@gmail.com>

Sent: Tuesday, July 28, 2020 10:58 AM

To: DOR TRS ARMB <dor.trs.armb@alaska.gov>

Subject: Precious Metals investment options

Good morning Stephanie,

I am writing as a State of Alaska employee who would like to request that the ARMB (Board) add a Precious Metals investment option to those investments available within the State's Defined Contribution Plans (Defined Contribution PERS/TRS, SBS and Deferred Comp). I am an active participant in all three of these plans.

Precious metals can act as a unique hedge against inflation and monetary debasement within an investment portfolio. Recognizing that it is likely impossible for the Board to provide access to the full universe of asset classes within these plans, Precious Metals is an important and unique asset class that is barely represented currently within the investment offerings that the Board has authorized for these plans. As the fiduciary for these plans, the Board is doing a disservice to plan participants by not providing access to investments within this asset class.

The Strategic Completion Fund currently offered through the plans is designed to help hedge against inflationary environments through its exposure to TIPS (currently 40%), Real Estate (currently 38%) and broad Commodities (currently 22%). A focused Precious Metals investment option would likely provide a more effective way to mitigate the negative investment risk posed by monetary debasement on participants' plan assets.

There are a large number of existing fund managers able to manage such an offering within the State's Defined Contribution Plans. These include offerings from fund companies such as: Fidelity Investments, Invesco, First Eagle, Franklin Templeton, American Century Investments, among others. A low cost fund option that provides exposure to precious metals producers, royalty and streaming companies, alongside allocated bullion would be a welcome addition to plan investment options.

Please let me know if you have any questions about my request. I'm happy to provide further information for the consideration of the Board.

Sincerely,
Mark Rosier

Individual Manager Transactions

June 2020 - Aug 2020

Asset Class	Total	Internal	External
Broad Domestic Equity (DE)	306,999,017	-	306,999,017
Global Equity Ex-US (IE)	90,000,000	-	90,000,000
Fixed Income (FI)	(389,498,895)	-	(389,498,895)
Real Assets (Real)	-	-	-
Private Equity (PE)	-	-	-
Opportunistic (Opp)	(7,500,122)	-	(7,500,122)
Total	-	-	-

Manager	Total	Internal	External	Fund	Asset Class	Description of Large Transactions
ARMB S&P 900	180,000,000	-	180,000,000	AY4L	DE	Rebalancing
ARMB Scientific Beta	117,000,000	-	117,000,000	AYLM	DE	Rebalancing
ARMB S&P 600	10,000,000	-	10,000,000	AYGA	DE	Rebalancing
Schroder Investment Management	(377)	-	(377)	AY5D	DE	Proceeds from terminated strategies
SSGA Russell 2000 Value - Index Fund	(607)	-	(607)	AY4P	DE	Proceeds from terminated strategies
Mondrian Investment Partners	(13)	-	(13)	AY63	FI	Proceeds from terminated strategies
Short Term Pool	(148,498,882)	-	(148,498,882)	AY70	FI	Rebalancing
ARMB Barclays Agg Fund	(241,000,000)	-	(241,000,000)	AY77	FI	Rebalancing
SSGA MSCI World Ex-US IMI Index	129,000,000	-	129,000,000	AYL7	IE	Rebalancing
Legal & General International Scientific Beta	70,000,000	-	70,000,000	AYLS	IE	Rebalancing
Brandes Investment Partners	6,000,000	-	6,000,000	AY65	IE	Rebalancing
SSGA MSCI Emerging Markets Index Fund	-	-	-	AYLB	IE	Rebalancing, net zero
Arrowstreet Capital	(36,000,000)	-	(36,000,000)	AYLQ	IE	Rebalancing
Baillie Gifford	(39,000,000)	-	(39,000,000)	AYLR	IE	Rebalancing
Capital Group	(40,000,000)	-	(40,000,000)	AY67	IE	Rebalancing
Wells Capital Management Buy Write	(122)	-	(122)	AY4X	Opp	Proceeds from terminated strategies
Schroders ILC	(7,500,000)	-	(7,500,000)	AY1H	Opp	Account Wind Down

ALASKA RETIREMENT MANAGEMENT BOARD

STAFF REPORT

Fund Financials – Cash Flow Report September 17, 2020

Kayla Wisner, State Comptroller, Department of Revenue

As of July month-end, total plan assets were as follows: PERS - \$19.9 billion, TRS - \$9.5 billion, JRS - \$231.7 million, NGNMRS - \$43.3 million, SBS - \$4.3 billion, DCP - \$1.03 billion. Total non-participant directed plans totaled \$27.6 billion, and participant-directed plans totaled \$7.4 billion. Total assets were \$35.0 billion.

Year-to-date income was \$1.08 billion, and the plans experienced a net contribution of \$226.8 million. Total assets were up 3.89% year-to-date.

Internally managed assets totaled \$14.1 billion

As of month-end, all plans were within the bands of their asset allocations.

Kevin Worley, Chief Financial Officer, Division of Retirement and Benefits

Presented is the Division of Retirement and Benefits (DRB) Supplement to the Treasury Division's Financial Report as of July 31, 2020.

DRB's supplement report expands on the ARMB Financial Report column "Net Contributions (Withdrawals)" located on pages 1 and 2. DRB reports the summary totals of actual employee and employer, State of Alaska, and other revenue contributions, as well as benefit payments, refunds / distributions, and combined administrative / investment expenditures. DRB's report presents cash inflows / outflows for the 1 month ended July 31, 2020 (page 1) and the month of July 2020 (page 2).

Also presented are participant-directed distributions by plan and by type for the 1-month period on page 3. This page provides (by Tier) information on the defined benefit refunds, and vested percentage on defined contribution distributions.

"Notes for the DRB Supplement to the Treasury Report" includes information for the pension and healthcare plans. Additional information regarding other income is also presented on pages 4 and 5.

**ALASKA RETIREMENT MANAGEMENT BOARD
FINANCIAL REPORT**

As of July 31, 2020

ALASKA RETIREMENT MANAGEMENT BOARD
Schedule of Investment Income and Changes in Invested Assets by Fund
Fiscal Year-to-Date through July 31, 2020

	Beginning Invested Assets	Investment Income ⁽¹⁾	Net Contributions (Withdrawals)	Ending Invested Assets	% Change in Invested Assets	% Change due to Investment Income ⁽²⁾
<u>Public Employees' Retirement System (PERS)</u>						
<u>Defined Benefit Plans:</u>						
Retirement Trust	\$ 9,344,522,576	\$ 295,833,655	\$ 154,509,404	\$ 9,794,865,635	4.82%	3.14%
Retirement Health Care Trust	7,755,155,160	243,055,076	(29,391,068)	7,968,819,168	2.76%	3.14%
Total Defined Benefit Plans	17,099,677,736	538,888,731	125,118,336	17,763,684,803	3.88%	3.14%
<u>Defined Contribution Plans:</u>						
Participant Directed Retirement	1,394,890,476	57,470,114	7,551,505	1,459,912,095	4.66%	4.11%
Health Reimbursement Arrangement	477,547,046	14,983,122	3,453,382	495,983,550	3.86%	3.13%
Retiree Medical Plan	139,052,827	4,363,715	1,431,316	144,847,858	4.17%	3.12%
<u>Defined Benefit Occupational Death and Disability:</u>						
Public Employees	28,652,603	899,012	240,921	29,792,536	3.98%	3.12%
Police and Firefighters	12,730,849	399,619	86,407	13,216,875	3.82%	3.13%
Total Defined Contribution Plans	2,052,873,801	78,115,582	12,763,531	2,143,752,914	4.43%	3.79%
Total PERS	19,152,551,537	617,004,313	137,881,867	19,907,437,717	3.94%	3.21%
<u>Teachers' Retirement System (TRS)</u>						
<u>Defined Benefit Plans:</u>						
Retirement Trust	5,375,743,401	170,602,674	100,741,605	5,647,087,680	5.05%	3.14%
Retirement Health Care Trust	2,928,208,583	91,784,751	(9,007,845)	3,010,985,489	2.83%	3.14%
Total Defined Benefit Plans	8,303,951,984	262,387,425	91,733,760	8,658,073,169	4.26%	3.14%
<u>Defined Contribution Plans:</u>						
Participant Directed Retirement	581,114,042	24,311,988	4,943,776	610,369,806	5.03%	4.17%
Health Reimbursement Arrangement	140,990,637	4,431,346	1,302,492	146,724,475	4.07%	3.13%
Retiree Medical Plan	47,385,507	1,489,846	514,709	49,390,062	4.23%	3.13%
Defined Benefit Occupational Death and Disability	4,732,927	148,706	35,803	4,917,436	3.90%	3.13%
Total Defined Contribution Plans	774,223,113	30,381,886	6,796,780	811,401,779	4.80%	3.91%
Total TRS	9,078,175,097	292,769,311	98,530,540	9,469,474,948	4.31%	3.21%
<u>Judicial Retirement System (JRS)</u>						
Defined Benefit Plan Retirement Trust	186,740,196	5,933,778	4,379,939	197,053,913	5.52%	3.14%
Defined Benefit Retirement Health Care Trust	33,653,239	1,055,032	(62,890)	34,645,381	2.95%	3.14%
Total JRS	220,393,435	6,988,810	4,317,049	231,699,294	5.13%	3.14%
<u>National Guard/Naval Militia Retirement System (MRS)</u>						
Defined Benefit Plan Retirement Trust	42,120,154	1,332,337	(149,799)	43,302,692	2.81%	3.17%
<u>Other Participant Directed Plans</u>						
Supplemental Annuity Plan	4,226,458,219	132,676,917	(10,397,189)	4,348,737,947	2.89%	3.14%
Deferred Compensation Plan	998,966,337	32,812,372	(3,421,224)	1,028,357,485	2.94%	3.29%
Total All Funds	33,718,664,779	1,083,584,060	226,761,244	35,029,010,083		
Total Non-Participant Directed	26,517,235,705	836,312,669	228,084,376	27,581,632,750	4.01%	3.14%
Total Participant Directed	7,201,429,074	247,271,391	(1,323,132)	7,447,377,333	3.42%	3.43%
Total All Funds	\$ 33,718,664,779	\$ 1,083,584,060	\$ 226,761,244	\$ 35,029,010,083	3.89%	3.20%

Notes:

(1) Includes interest, dividends, securities lending, expenses, realized and unrealized gains/losses

(2) Income divided by beginning assets plus half of net contributions/(withdrawals). Actual returns are calculated by Callan and Associates and can be found at: <http://www.revenue.state.ak.us/treasury/programs/programs/other/armb/investmentresults.aspx>

ALASKA RETIREMENT MANAGEMENT BOARD
Schedule of Investment Income and Changes in Invested Assets by Fund
For the Month Ended July 31, 2020

	Beginning Invested Assets	Investment Income (1)	Net Contributions (Withdrawals)	Ending Invested Assets	% Change in Invested Assets	% Change due to Investment Income (2)
<u>Public Employees' Retirement System (PERS)</u>						
<u>Defined Benefit Plans:</u>						
Retirement Trust	\$ 9,344,522,576	\$ 295,833,655	\$ 154,509,404	\$ 9,794,865,635	4.82%	3.14%
Retirement Health Care Trust	7,755,155,160	243,055,076	(29,391,068)	7,968,819,168	2.76%	3.14%
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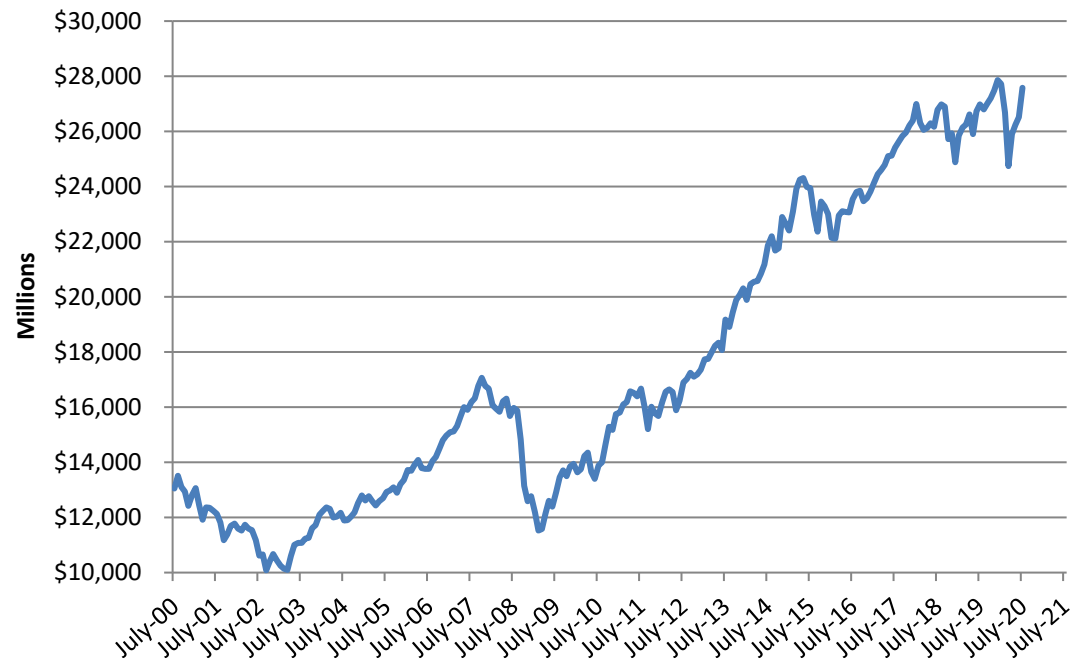
Notes:

(1) Includes interest, dividends, securities lending, expenses, realized and unrealized gains/losses

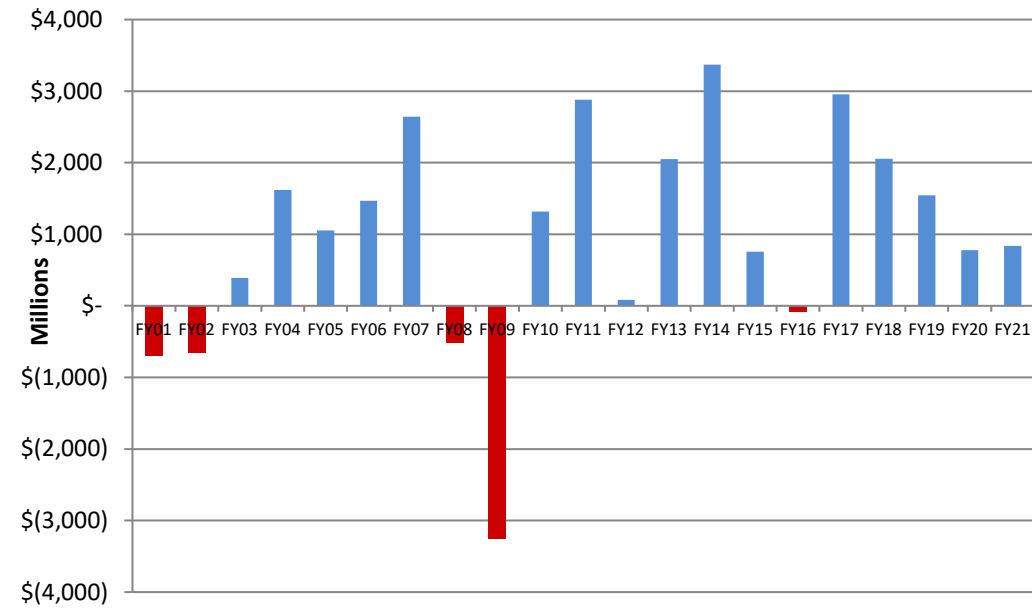
(2) Income divided by beginning assets plus half of net contributions/(withdrawals). Actual returns are calculated by Callan and Associates and can be found at: <http://www.revenue.state.ak.us/treasury/programs/programs/other/armb/investmentresults.aspx>

Total Non Participant Directed Assets As of July 31, 2020

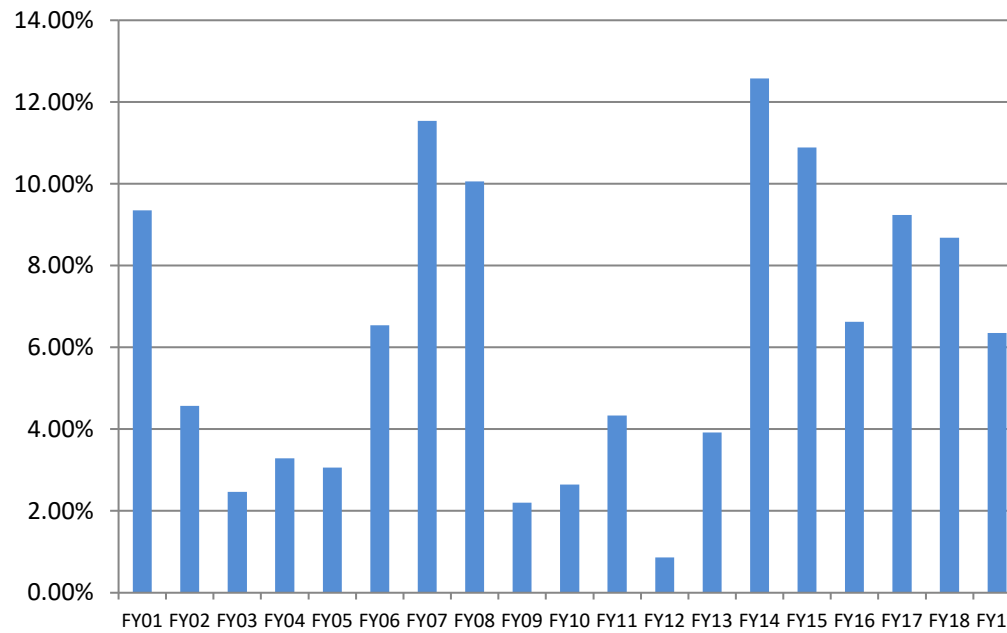
Total Assets History



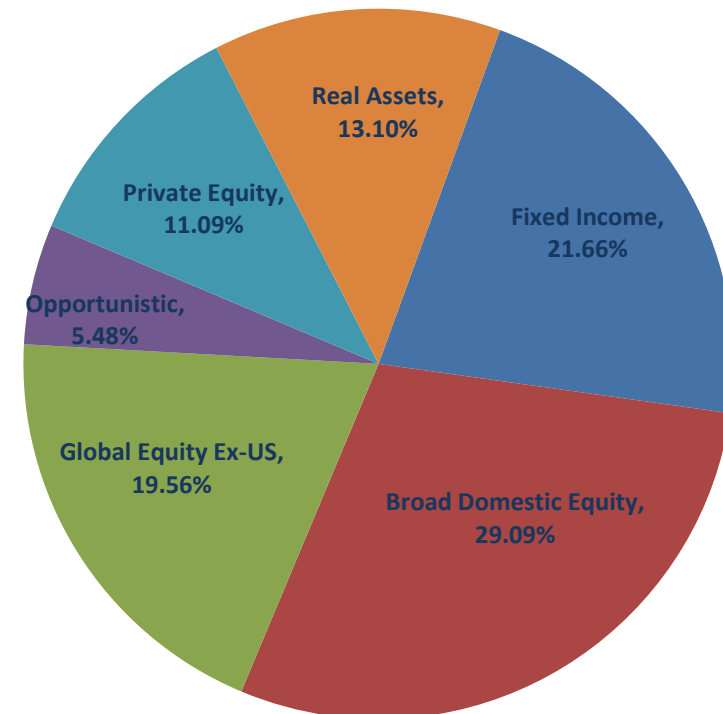
Income by Fiscal Year



5-year Annualized Returns as of Fiscal Year End

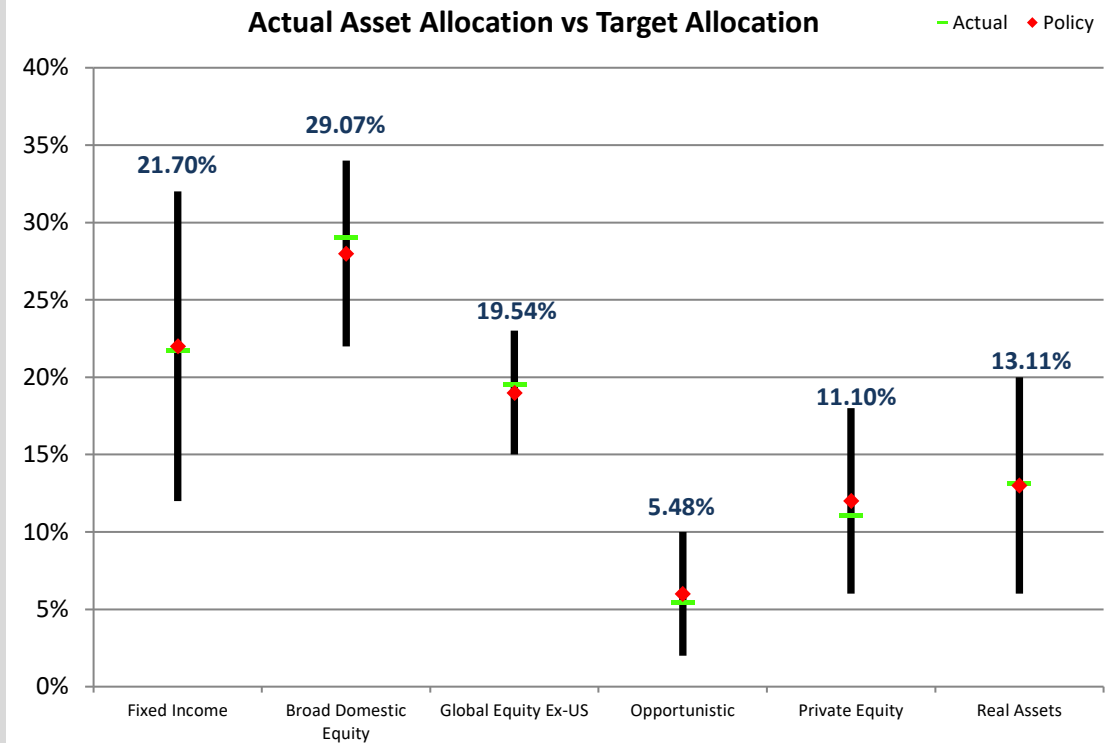
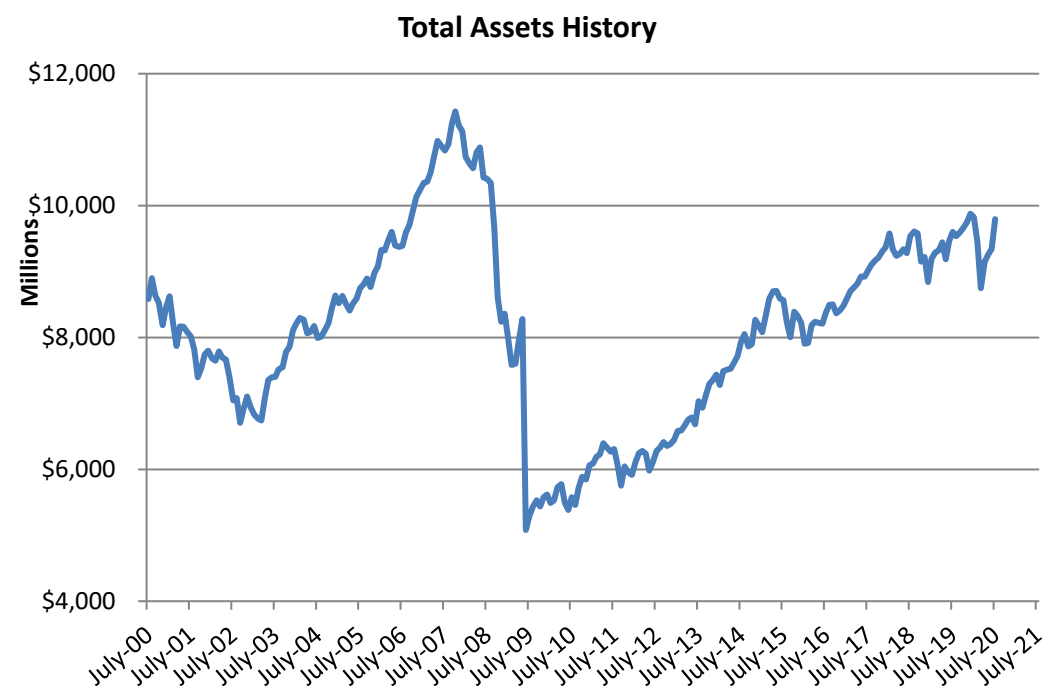
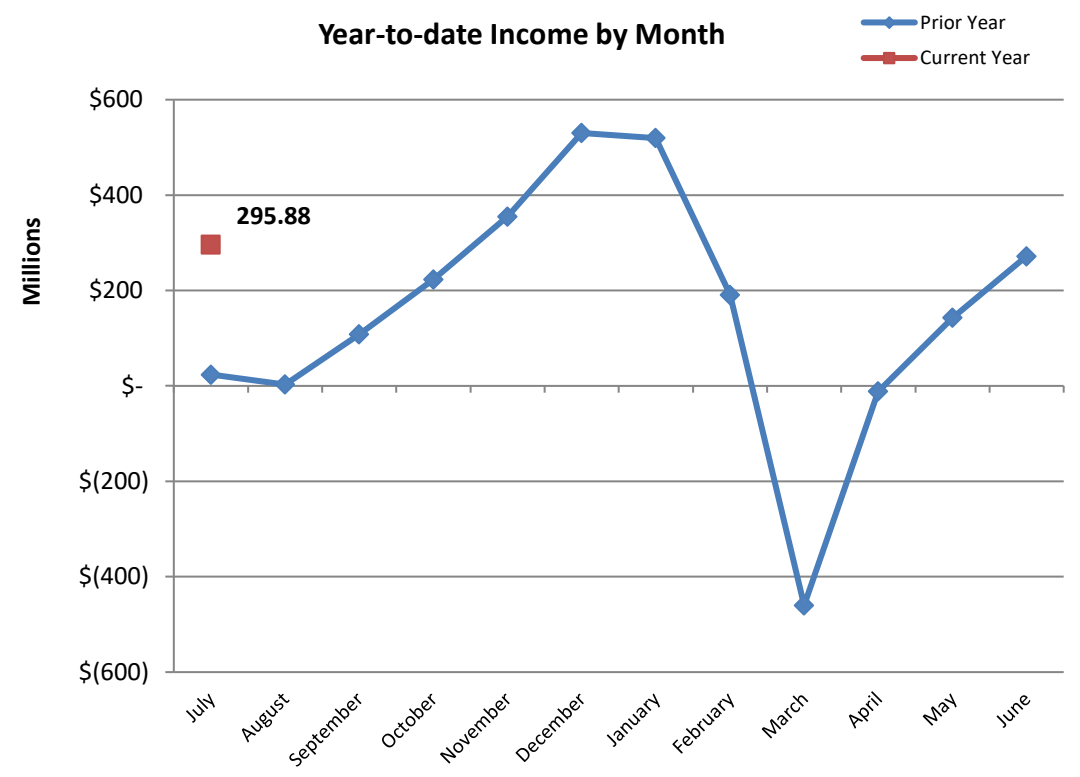
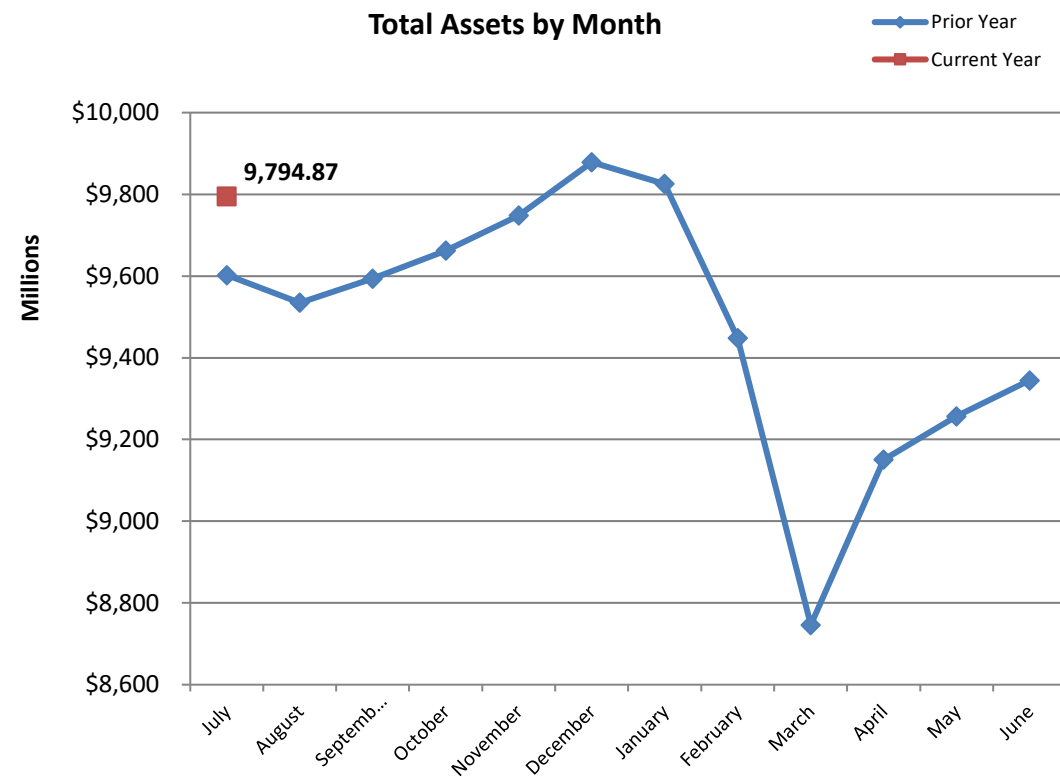


Actual Asset Allocation



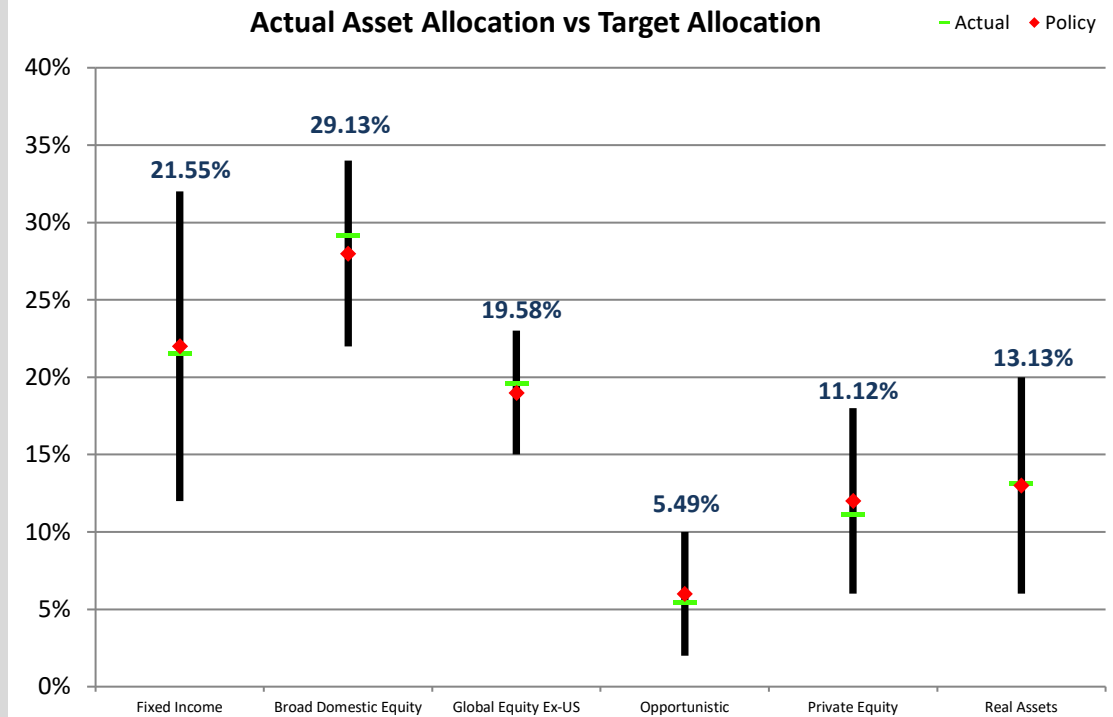
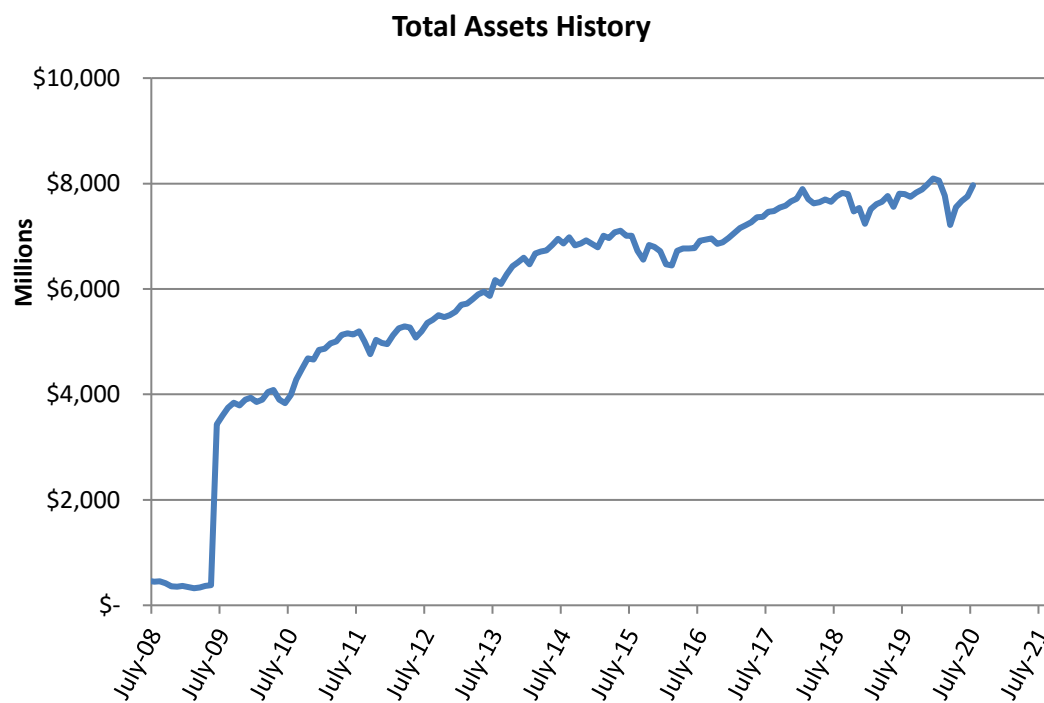
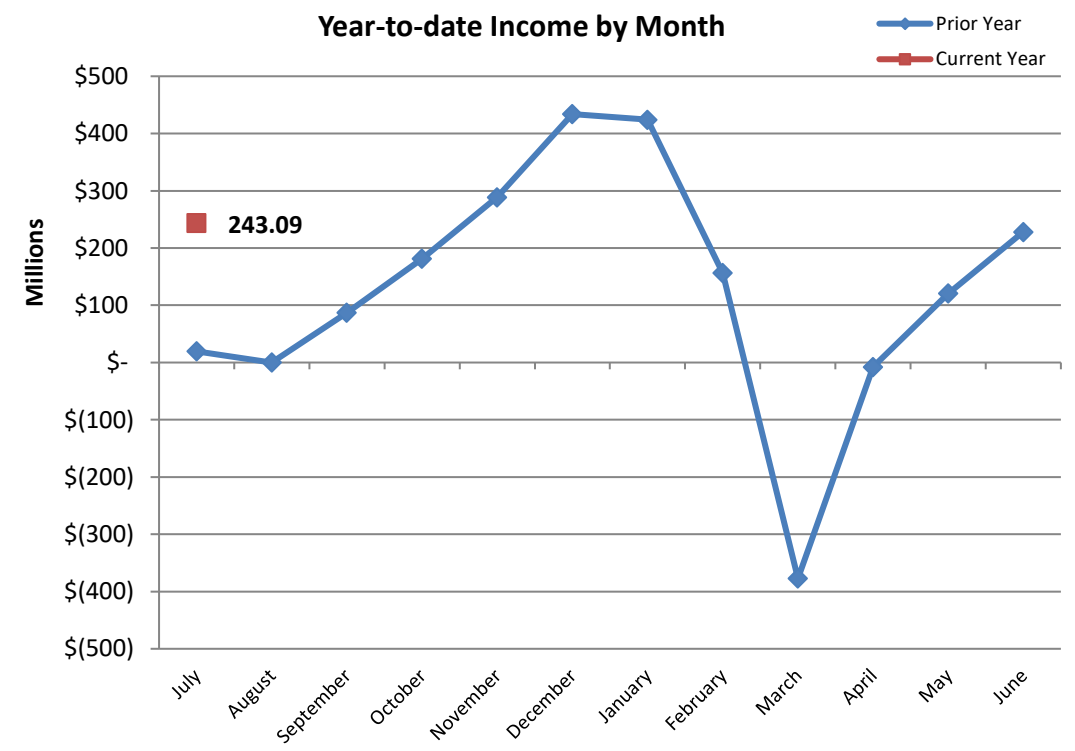
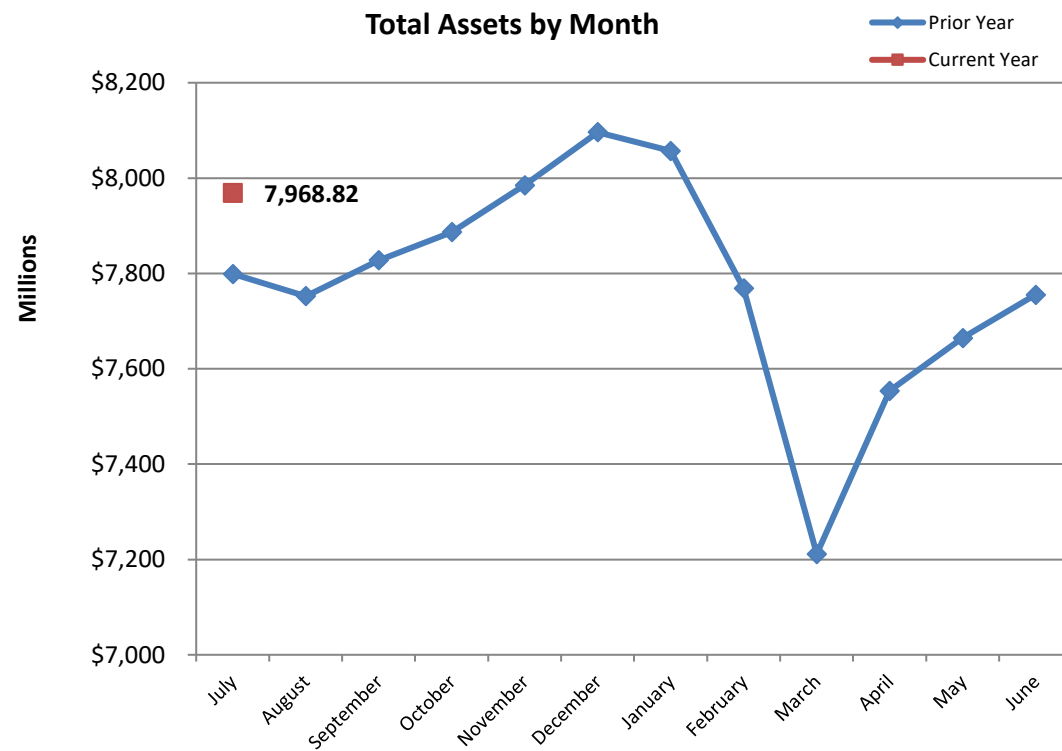
Public Employees' Retirement Pension Trust Fund

Fiscal Year-to-Date through July 31, 2020

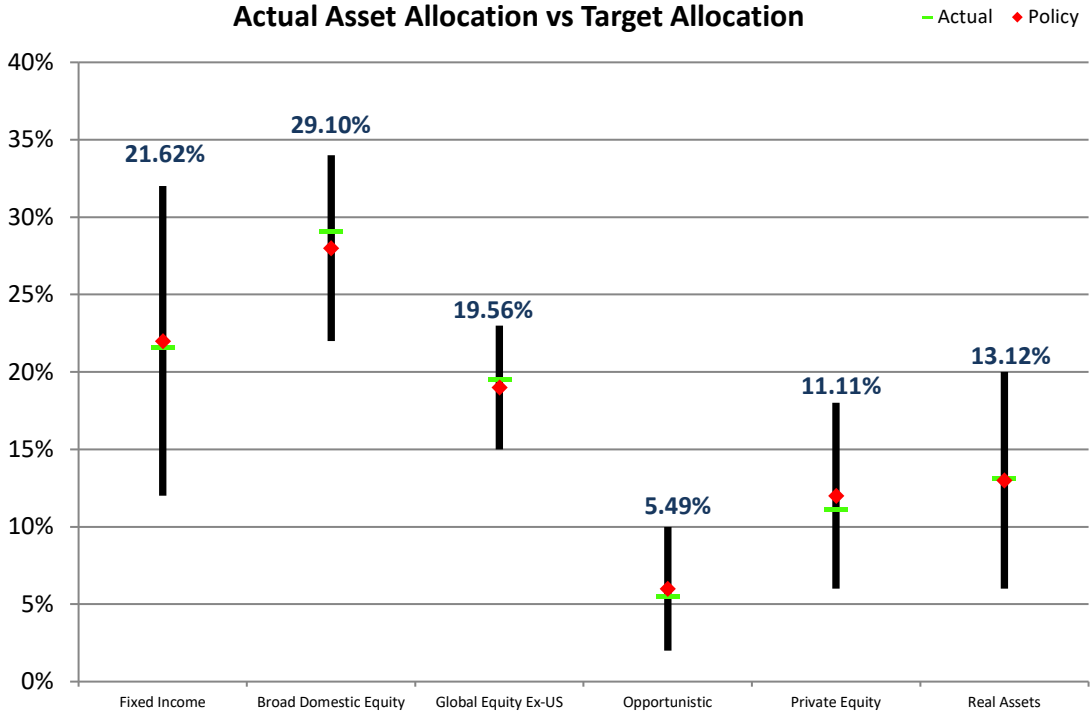
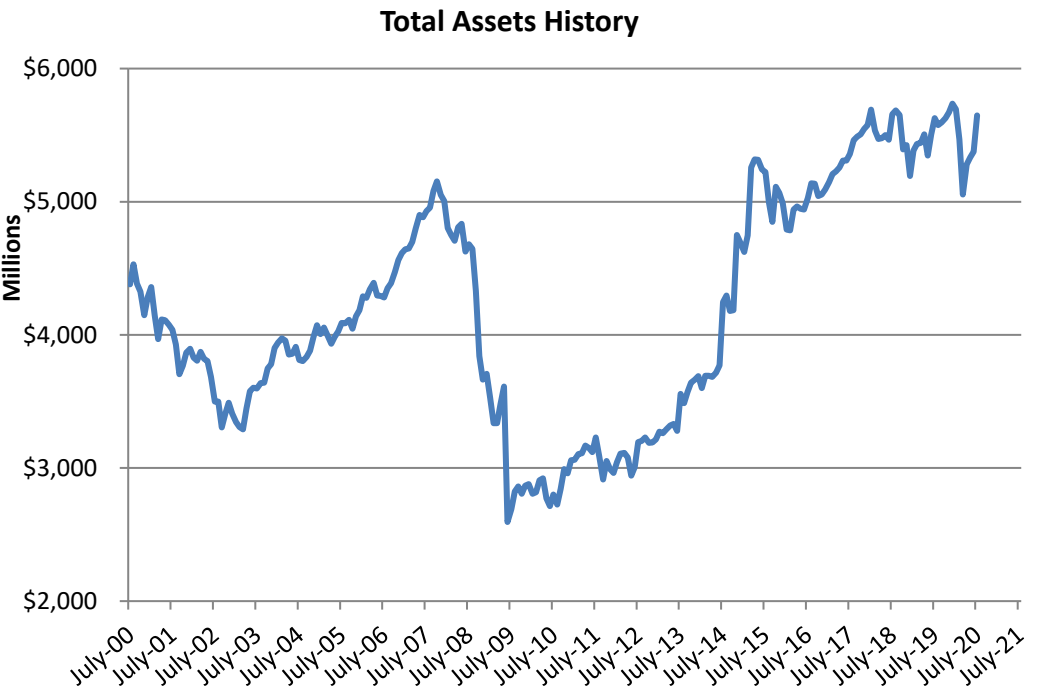
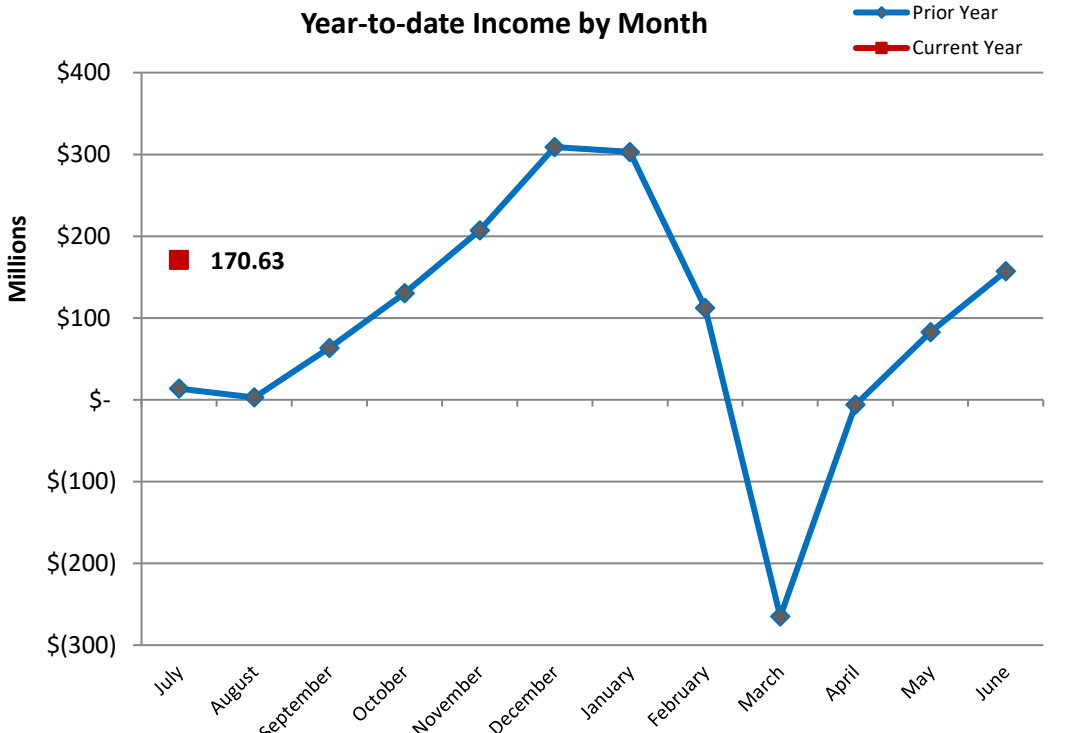
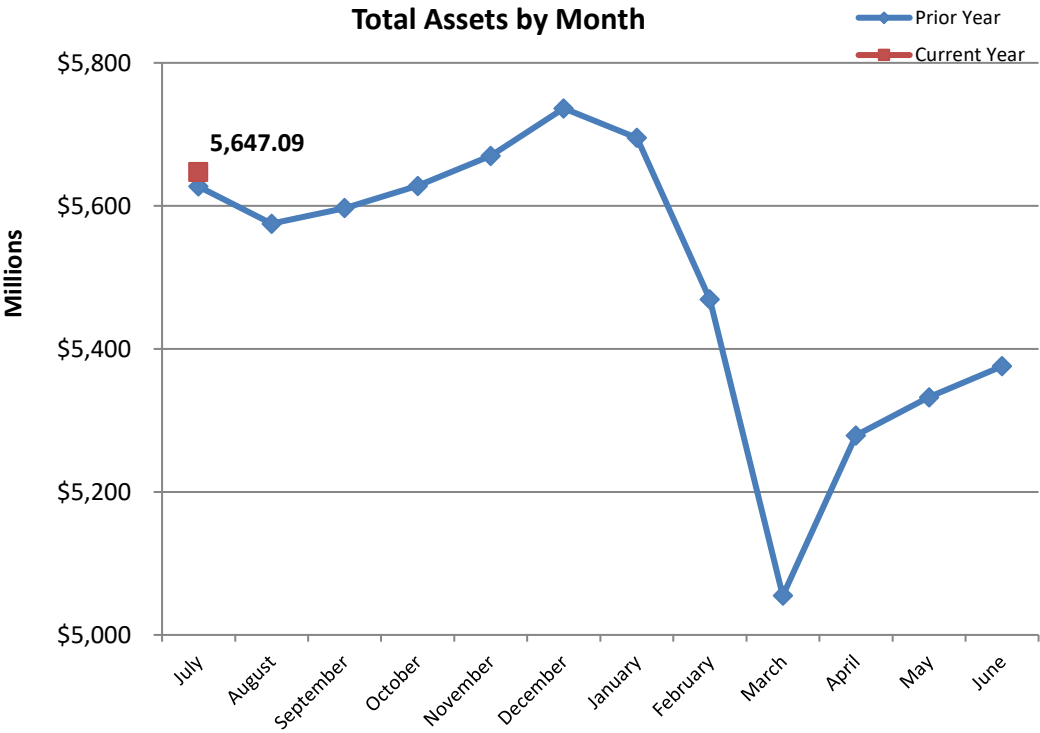


Public Employees' Retirement Health Care Trust Fund

Fiscal Year-to-Date through July 31, 2020

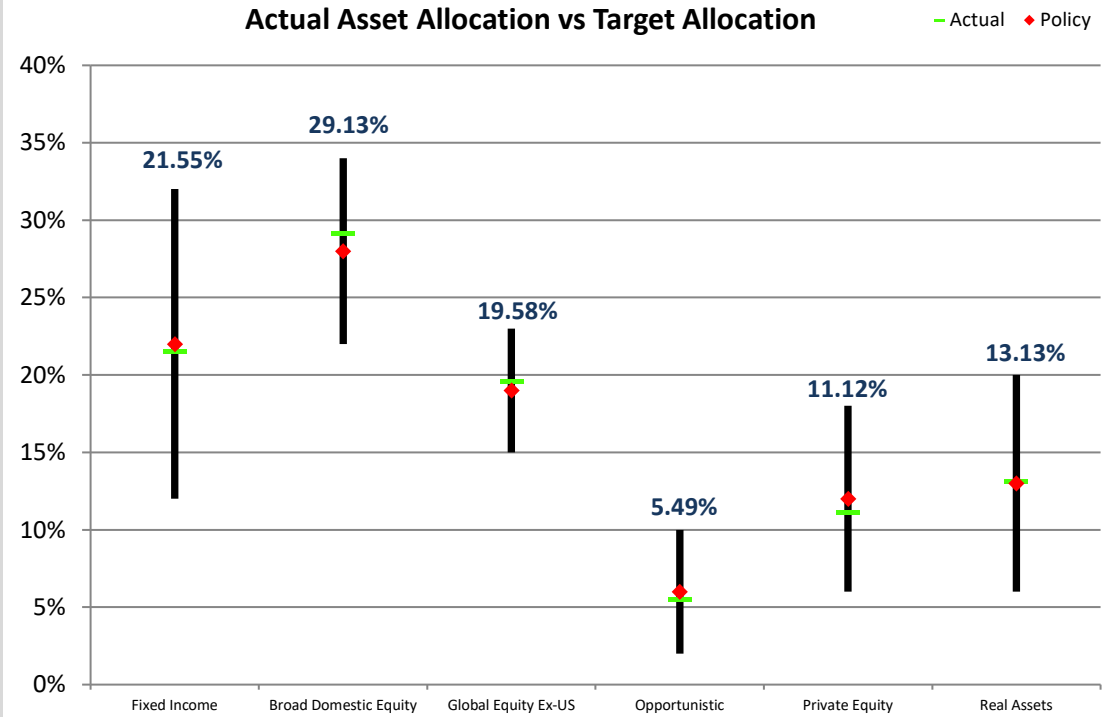
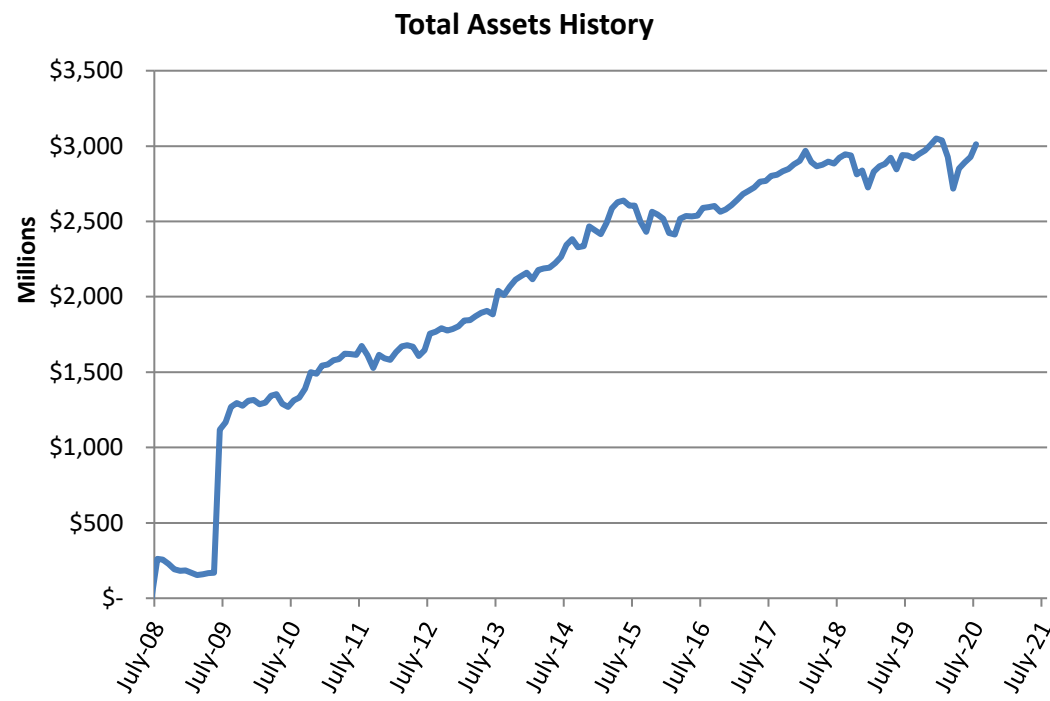
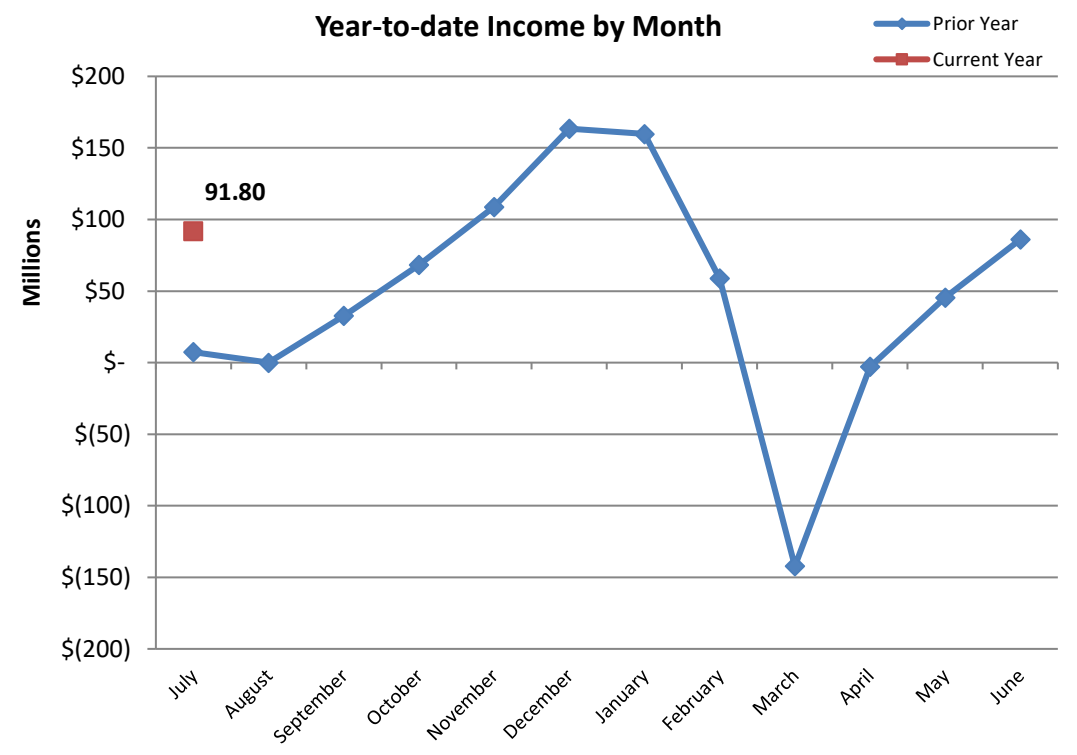
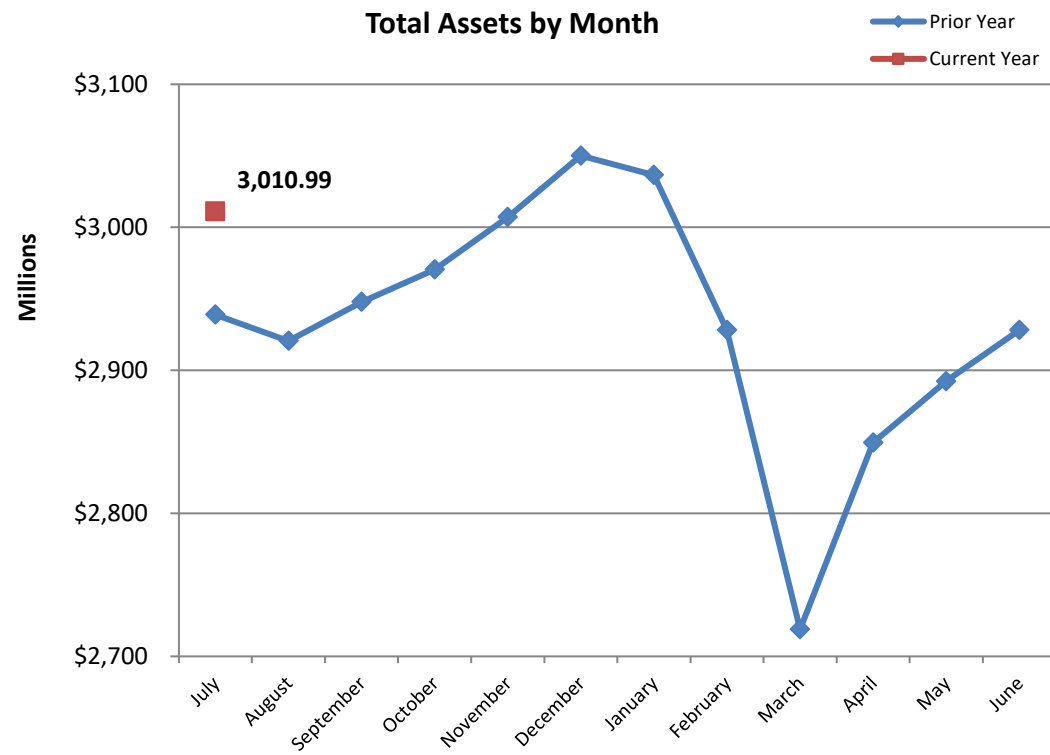


Teachers' Retirement Pension Trust Fund Fiscal Year-to-Date through July 31, 2020



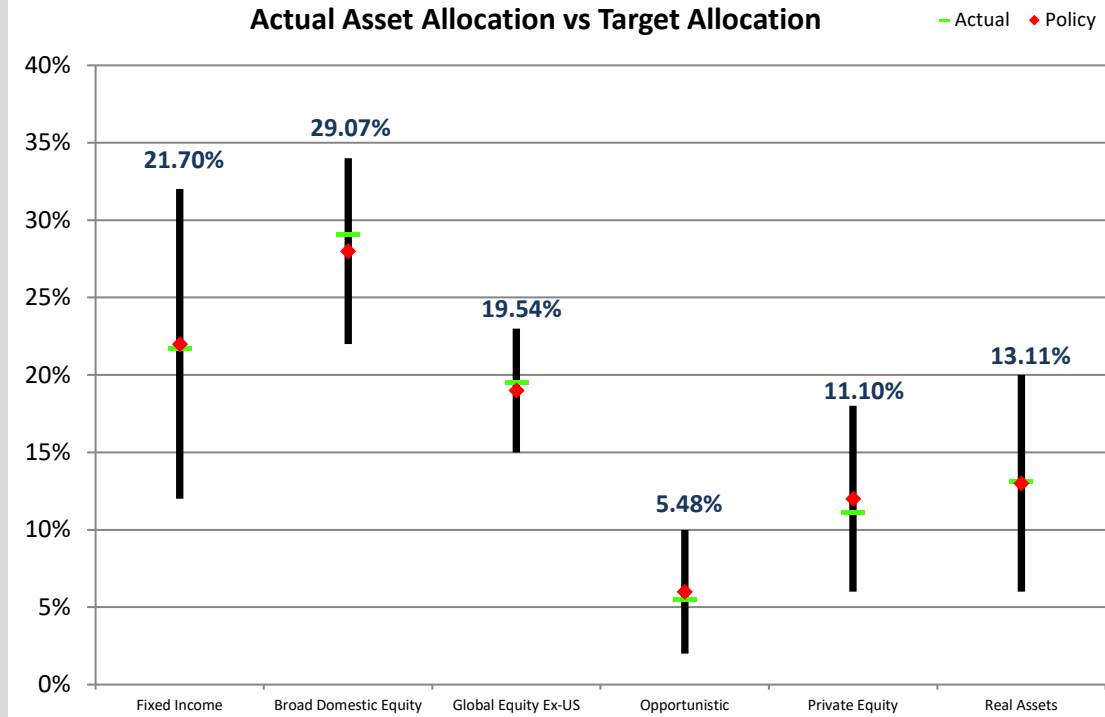
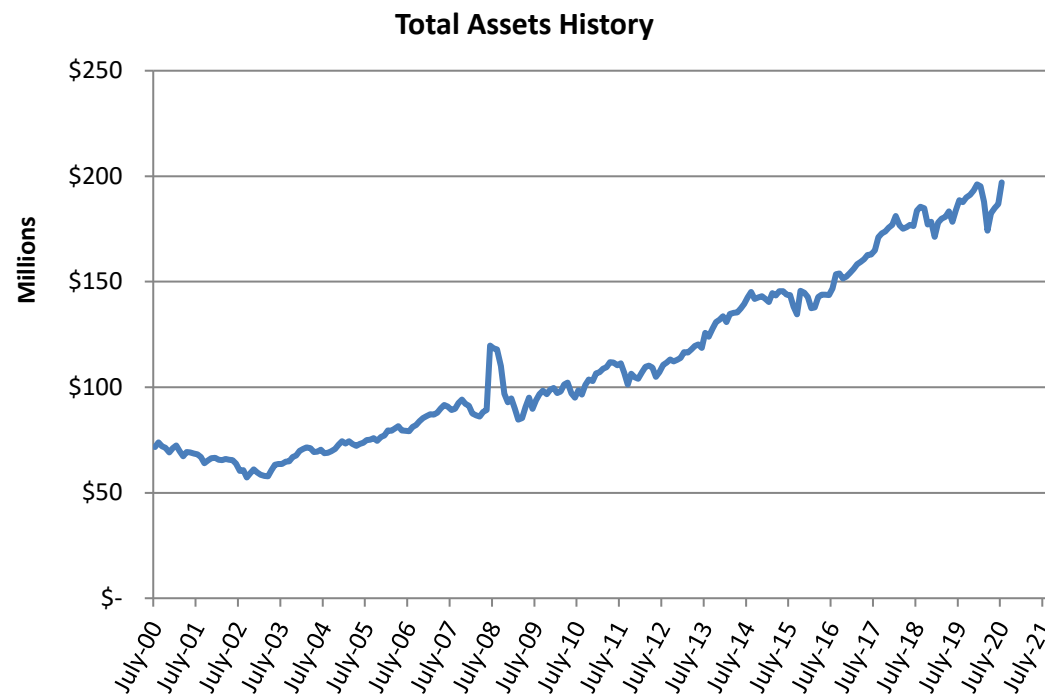
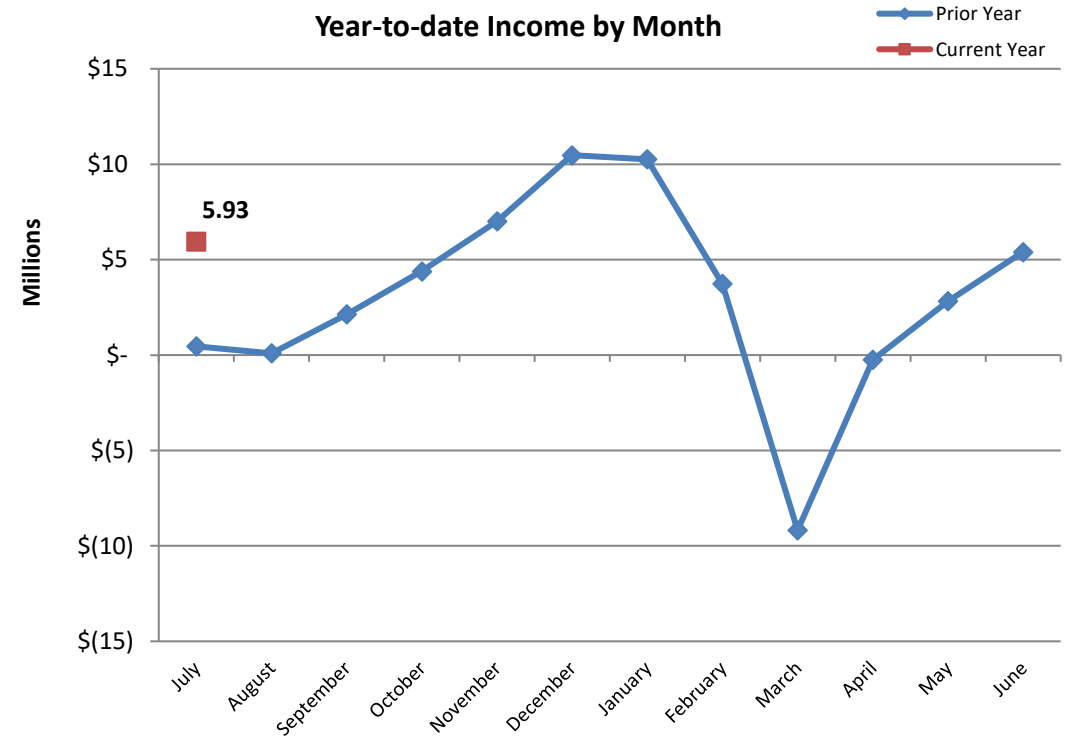
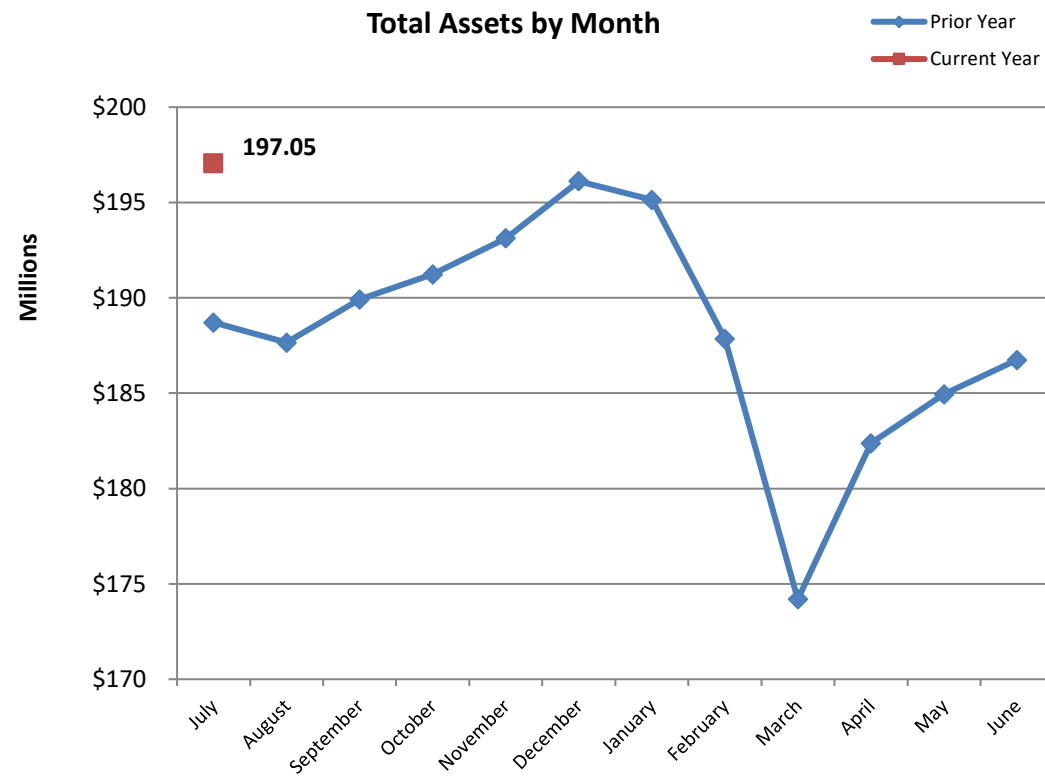
Teachers' Retirement Health Care Trust Fund

Fiscal Year-to-Date through July 31, 2020



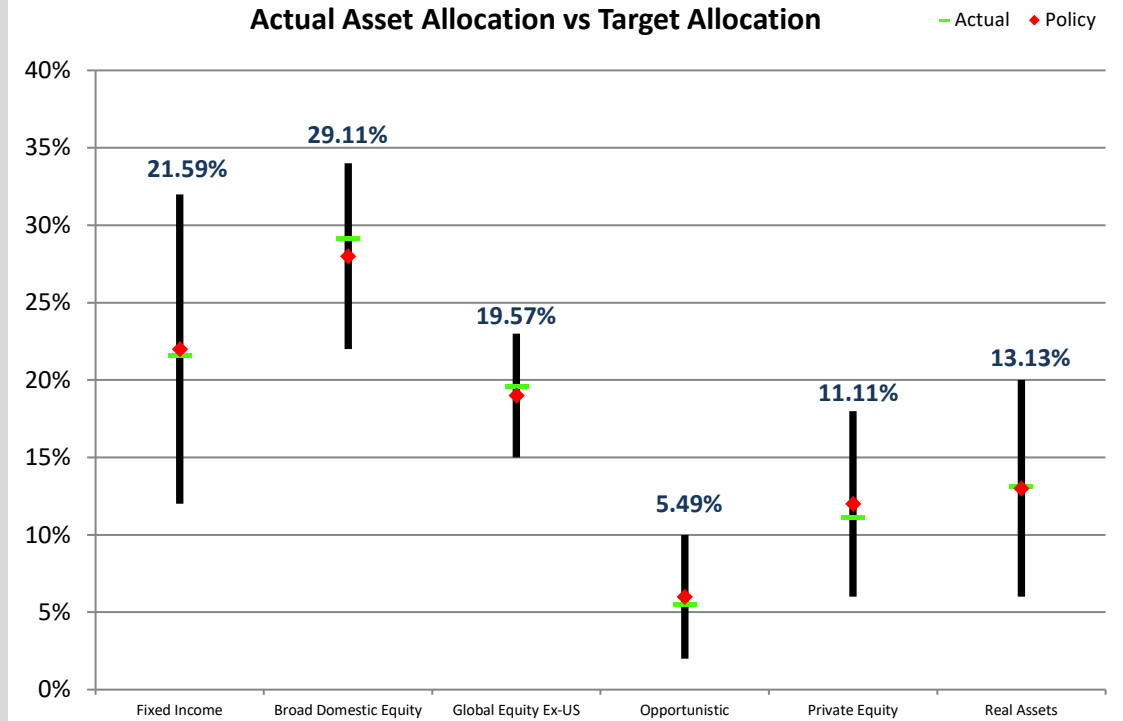
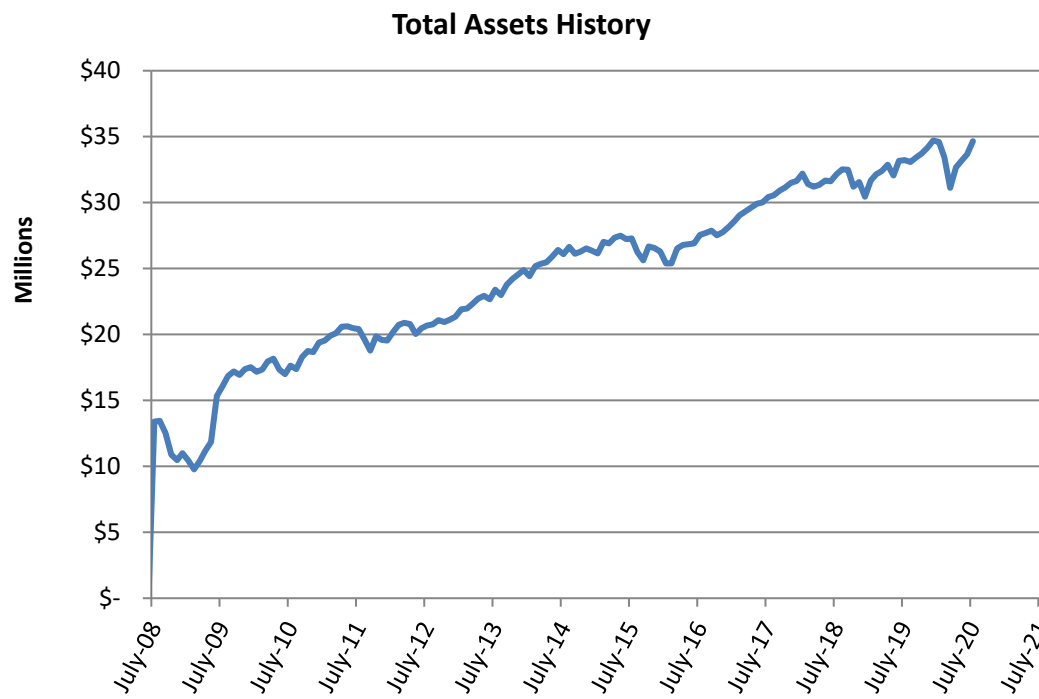
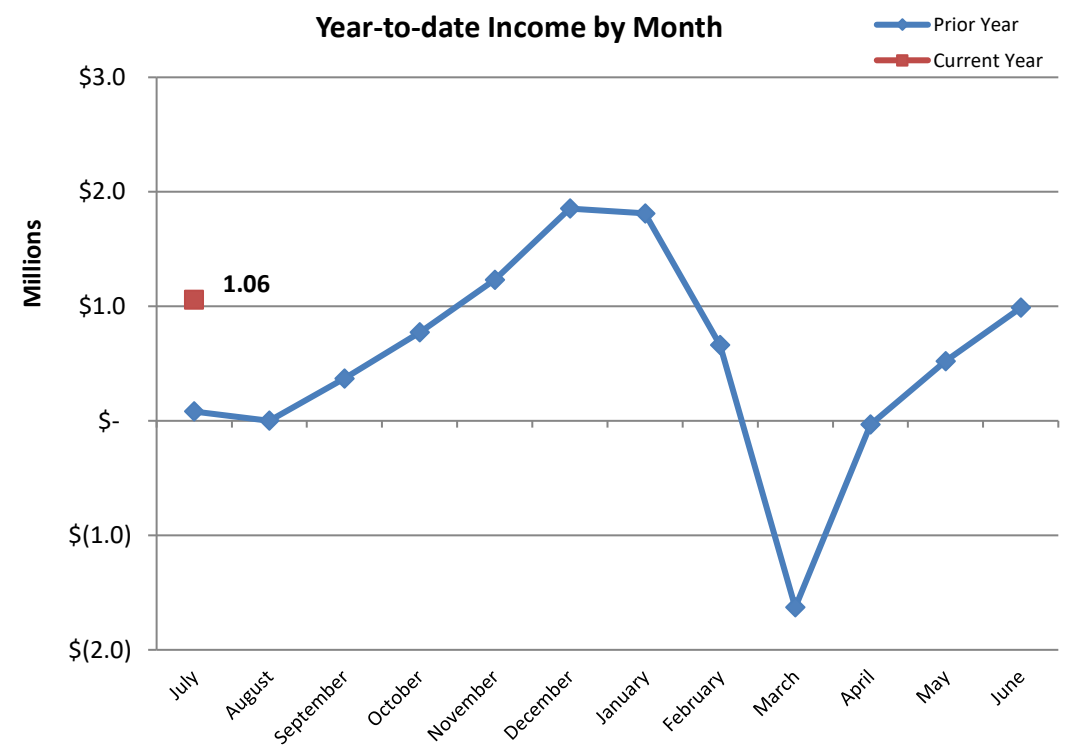
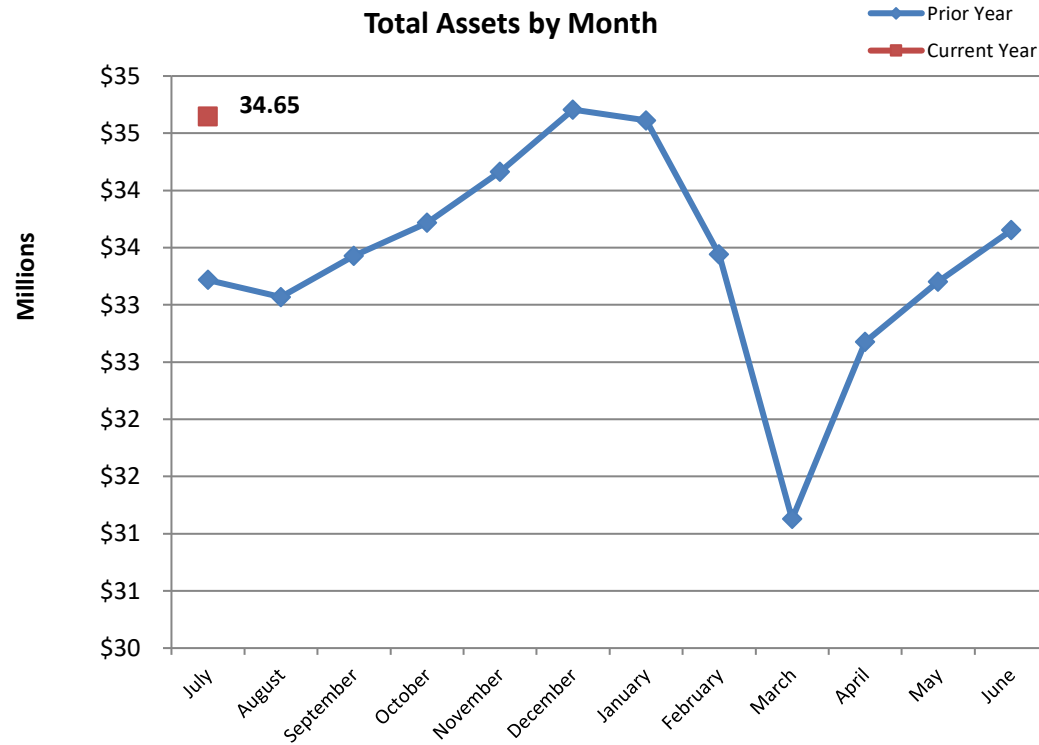
Judicial Retirement Pension Trust Fund

Fiscal Year-to-Date through July 31, 2020



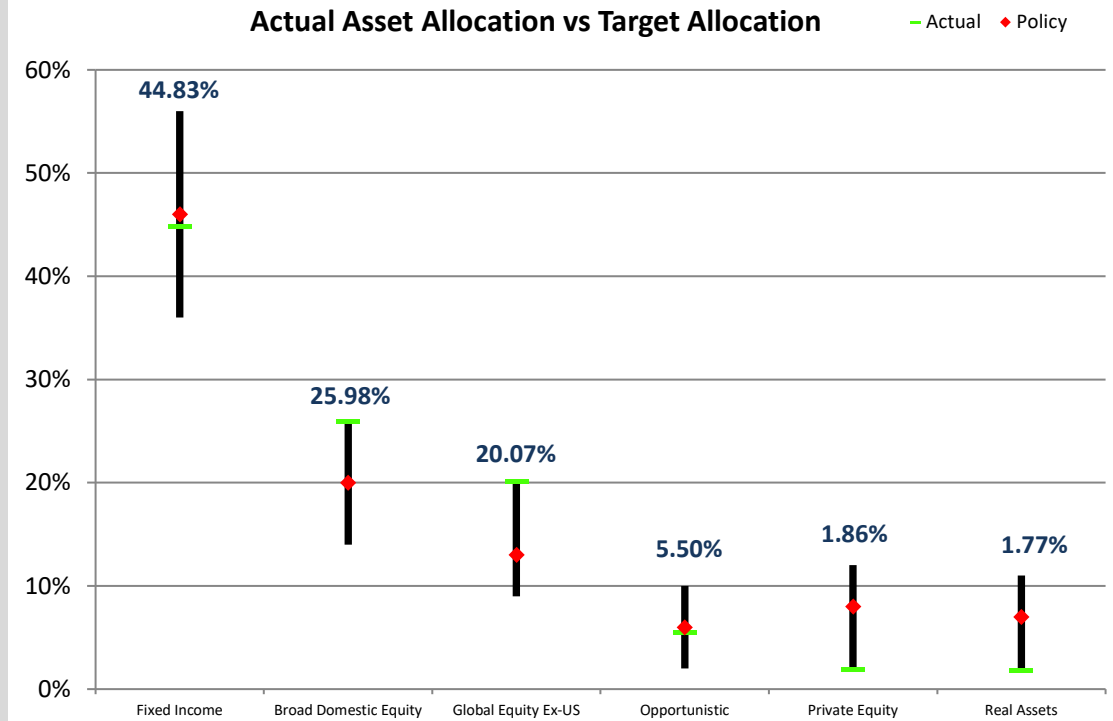
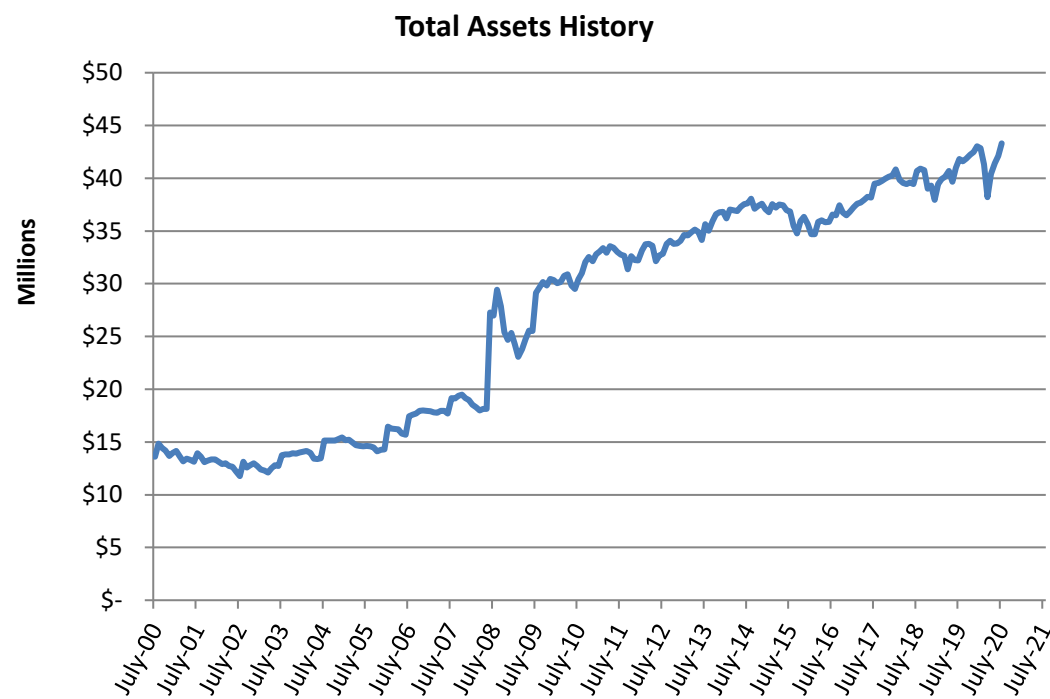
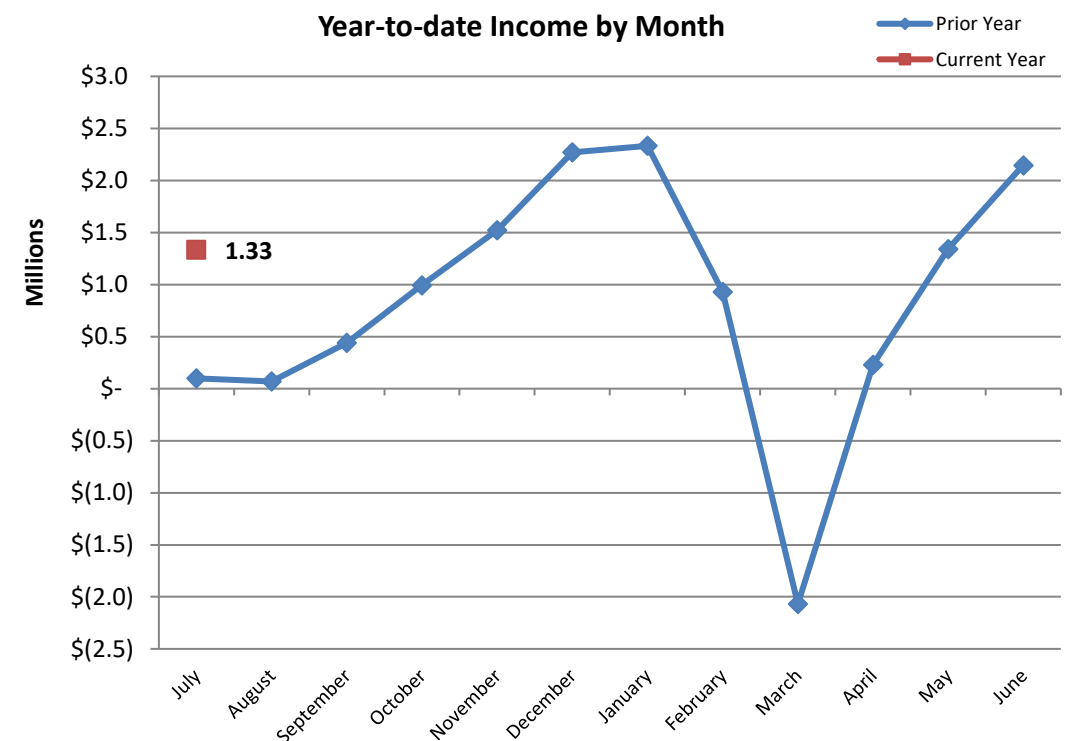
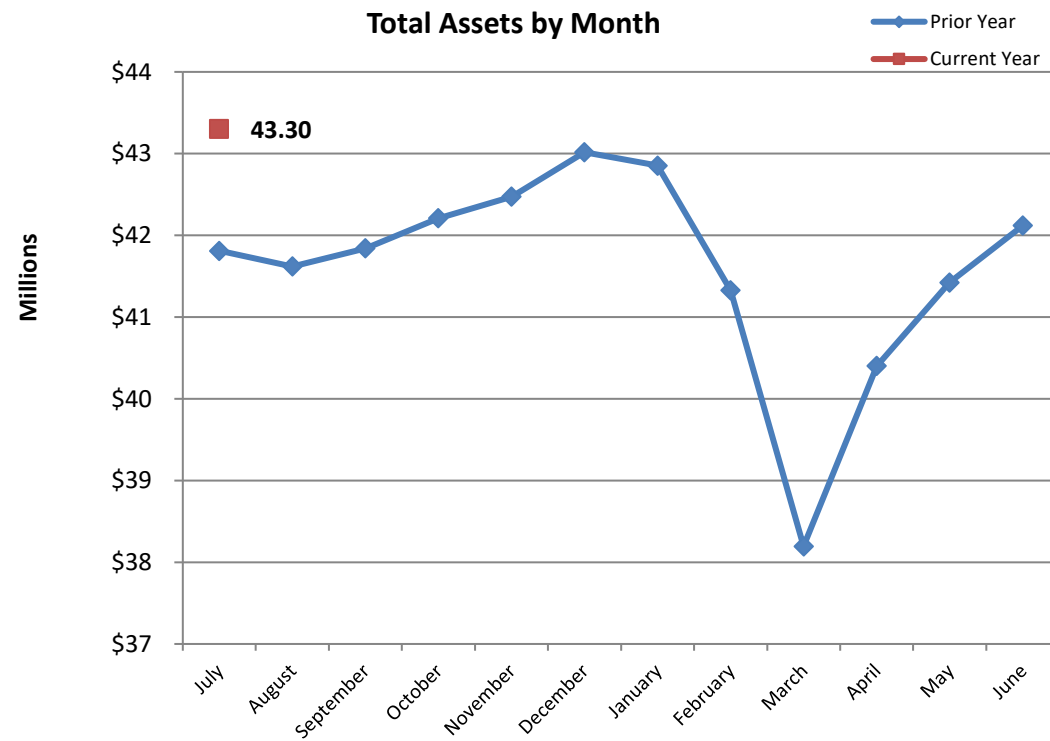
Judicial Retirement Health Care Trust Fund

Fiscal Year-to-Date through July 31, 2020



Military Retirement Trust Fund

Fiscal Year-to-Date through July 31, 2020



ALASKA RETIREMENT MANAGEMENT BOARD

Reporting of Funds by Manager

All Non-Participant Directed Plans

Alaska Retirement Management Board
All Non-Participant Directed Plans by Manager
Schedule of Investment Income and Changes in Invested Assets
For the Month Ended July 31, 2020

	Beginning Invested Assets	Investment Income	Net Contributions and (Withdrawals)	Ending Invested Assets	% increase (decrease)	% Change due to Investment Income
Cash						
Short-Term Fixed Income Pool	\$ 244,563,968	\$ 100,588	\$ (10,205,110)	\$ 234,459,446	-4.13%	0.04%
Securities Lending Income Pool	104,041	135,486	(111,675)	127,852	22.89%	281.07%
Total Cash	<u>244,668,009</u>	<u>236,074</u>	<u>(10,316,785)</u>	<u>234,587,298</u>	-4.12%	0.10%
Fixed Income						
Alternative Fixed Income						
Crestline Investors, Inc.	622,307,885	(16,556,002)	1,098,900	606,850,783	-2.48%	-2.66%
Prisma Capital Partners	128,520,314	3,071,603	-	131,591,917	2.39%	2.39%
Crestline Specialty Fund	26,392,080	-	(913,444)	25,478,636	-3.46%	-
Crestline Specialty Lending Fund II	33,394,075	-	-	33,394,075	-	-
Total Alternative Fixed Income	<u>810,614,354</u>	<u>(13,484,399)</u>	<u>185,456</u>	<u>797,315,411</u>	-1.64%	-1.66%
Opportunistic Fixed Income						
Fidelity Inst. Asset Mgmt. High Yield CMBS	183,430,705	3,446,652	-	186,877,357	1.88%	1.88%
Fidelity Institutional Asset Management	684,180,630	21,378,788	-	705,559,418	3.12%	3.12%
MacKay Shields, LLC	5,529,329	(250,006)	-	5,279,323	-4.52%	-4.52%
Total Opportunistic Fixed Income	<u>873,140,664</u>	<u>24,575,434</u>	<u>-</u>	<u>897,716,098</u>	2.81%	2.81%
ARMB Barclays Agg Bond Fund						
ARMB Barclays Agg Bond Fund	4,124,189,278	66,450,558	(145,000,000)	4,045,639,836	-1.90%	1.64%
Total Fixed Income	<u>5,807,944,296</u>	<u>77,541,593</u>	<u>(144,814,544)</u>	<u>5,740,671,345</u>	-1.16%	1.35%
Domestic Equities						
Small Cap						
Passively Managed						
ARMB S&P 600	594,603,482	25,932,258	30,006,760	650,542,500	9.41%	4.25%
Total Passive	<u>594,603,482</u>	<u>25,932,258</u>	<u>30,006,760</u>	<u>650,542,500</u>	9.41%	4.25%
Actively Managed						
Lord Abbett & Co.- Micro Cap	3,978	-	-	3,978	-	-
Transition Account	-	-	-	-	-	-
Zebra Capital Management	6,964	3	-	6,967	0.04%	0.04%
Total Active	<u>10,942</u>	<u>3</u>	<u>-</u>	<u>10,945</u>	0.03%	0.03%
Total Small Cap	<u>594,614,424</u>	<u>25,932,261</u>	<u>30,006,760</u>	<u>650,553,445</u>	9.41%	4.25%

Alaska Retirement Management Board
All Non-Participant Directed Plans by Manager
Schedule of Investment Income and Changes in Invested Assets
For the Month Ended July 31, 2020

Large Cap						
Passively Managed						
ARMB S&P 900	4,726,655,258	272,959,268	135,055,094	5,134,669,620	8.63%	5.69%
Total Passive	4,726,655,258	272,959,268	135,055,094	5,134,669,620	8.63%	5.69%
Actively Managed						
ARMB Domestic Residual Assets	10,778	633	-	11,411	5.87%	5.87%
ARMB Large Cap Multi-Factor	107,550,698	6,893,454	-	114,444,152	6.41%	6.41%
ARMB Scientific Beta	1,894,635,733	112,965,147	117,167,127	2,124,768,007	12.15%	5.78%
Barrow, Hanley, Mewhinney & Strauss	7,313	-	-	7,313	-	-
Transition Account	46	-	-	46	-	-
Total Active	2,002,204,568	119,859,234	117,167,127	2,239,230,929	11.84%	5.82%
Total Large Cap	6,728,859,826	392,818,502	252,222,221	7,373,900,549	9.59%	5.73%
Total Domestic Equity	7,323,474,250	418,750,763	282,228,981	8,024,453,994	9.57%	5.61%
Large Cap						
Arrow Street Capital	541,481,915	29,768,915	(26,000,000)	545,250,830	0.70%	5.63%
Baillie Gifford Overseas Limited	287,819,580	17,965,503	(33,000,000)	272,785,083	-5.22%	6.62%
Brandes Investment Partners	255,270,747	4,717,195	12,196,982	272,184,924	6.63%	1.80%
Cap Guardian Trust Co	544,534,110	36,094,849	(35,000,000)	545,628,959	0.20%	6.85%
Lazard Freres	98,053	4,020	-	102,073	4.10%	4.10%
Legal & General	705,292,138	21,829,308	85,061,757	812,183,203	15.16%	2.92%
McKinley Capital Management	3,654,432	239,730	22,222	3,916,384	7.17%	6.54%
SSgA MSCI World Ex-US IMI Index Fund	1,841,237,021	53,175,246	104,000,000	1,998,412,267	8.54%	2.81%
State Street Global Advisors	202,061	21,761	(22,222)	201,600	-0.23%	11.40%
Total Large Cap	4,179,590,057	163,816,527	107,258,739	4,450,665,323	6.49%	3.87%

Alaska Retirement Management Board
All Non-Participant Directed Plans by Manager
Schedule of Investment Income and Changes in Invested Assets
For the Month Ended July 31, 2020

Emerging Markets Equity						
MSCI Emerging Markets Index Fund	620,306,981	55,103,976	-	675,410,957	8.88%	8.88%
DePrince, Race, and Zollo Emerging Markets	72,916	-	-	72,916	-	-
Legal & General Sci-Beta Emerging Markets	253,621,768	15,442,969	22,236	269,086,973	6.10%	6.09%
Total Emerging Markets	874,001,665	70,546,945	22,236	944,570,846	8.07%	8.07%
Total Global Equities	5,053,591,722	234,363,472	107,280,975	5,395,236,169	6.76%	4.59%
Opportunistic						
Alternative Equity Strategy						
Alternative Equity Strategies Transition Account	-	-	-	-	-	-
Analytic Buy Write Account	122	-	(122)	-	-100.00%	-
McKinley Global Health Care	288,156,544	21,589,747	312,882	310,059,173	7.60%	7.49%
Total Alternative Equity Strategy	288,156,666	21,589,747	312,760	310,059,173	7.60%	7.49%
Alternative Beta						
Man Group Alternative Risk Premia	308,074,833	(5,308,001)	-	302,766,832	-1.72%	-1.72%
Total Alternative Beta	308,074,833	(5,308,001)	-	302,766,832	-1.72%	-1.72%
Other Opportunities						
Project Pearl	9,536,821	-	-	9,536,821	-	-
Schroders Insurance Linked Securities	27,938,920	661,000	(7,500,000)	21,099,920	-24.48%	2.73%
Total Other Opportunities	37,475,741	661,000	(7,500,000)	30,636,741	-18.25%	1.96%
Tactical Allocation Strategies						
Fidelity Signals	427,430,164	16,181,592	-	443,611,756	3.79%	3.79%
PineBridge	402,709,562	22,950,735	-	425,660,297	5.70%	5.70%
Total Tactical Allocation Strategies	830,139,726	39,132,327	-	869,272,053	4.71%	4.71%
Total Opportunistic	1,463,846,966	56,075,073	(7,187,240)	1,512,734,799	3.34%	3.84%

Alaska Retirement Management Board
All Non-Participant Directed Plans by Manager
Schedule of Investment Income and Changes in Invested Assets
For the Month Ended July 31, 2020

Private Equity

Abbott Capital	1,151,836,411	25,327,970	7,523,271	1,184,687,652	2.85%	2.19%
Advent International GPE Fund VIII-B	24,621,335	-	-	24,621,335	-	-
Advent International GPE Fund IX	6,658,252	-	750,000	7,408,252	11.26%	-
Angelo, Gordon & Co.	5,710	-	-	5,710	-	-
Clearlake Capital Partners VI	2,925,267	-	-	2,925,267	-	-
Dyal Capital Partners III	26,079,837	1,919,722	-	27,999,559	7.36%	7.36%
Dyal Capital Partners IV	3,516,100	(348,075)	(295,614)	2,872,411	-18.31%	-10.33%
Glendon Opportunities	24,962,921	-	-	24,962,921	-	-
Glendon Opportunities II	30,490,969	-	-	30,490,969	-	-
KKR Lending Partners II	19,442,333	-	-	19,442,333	-	-
Lexington Capital Partners VIII	31,986,586	-	(407,072)	31,579,514	-1.27%	-
Lexington Partners VII	15,316,686	-	(280,663)	15,036,023	-1.83%	-
Merit Capital Partners	10,742,155	-	-	10,742,155	-	-
NB SOF III	16,875,705	-	-	16,875,705	-	-
NB SOF IV	25,328,946	(2,254,018)	-	23,074,928	-8.90%	-8.90%
New Mountain Partners IV	19,025,874	-	225,172	19,251,046	1.18%	-
New Mountain Partners V	38,117,778	-	4,100,782	42,218,560	10.76%	-
NGP XI	32,848,966	-	(357,978)	32,490,988	-1.09%	-
NGP XII	16,333,857	-	412,474	16,746,331	2.53%	-
Onex Partnership III	5,389,265	-	-	5,389,265	-	-
Pathway Capital Management LLC	1,310,973,998	16,209,511	869,896	1,328,053,405	1.30%	1.24%
Resolute Fund III	15,527,166	-	-	15,527,166	-	-
Resolute Fund IV	32,910,025	-	(21,376)	32,888,649	-0.06%	-
Summit Partners GE IX	45,797,826	-	-	45,797,826	-	-
Summit Partners GE X	3,089,210	-	-	3,089,210	-	-
Warburg Pincus Global Growth Fund	8,545,139	-	-	8,545,139	-	-
Warburg Pincus X	4,014,237	-	(992,280)	3,021,957	-24.72%	-
Warburg Pincus XI	15,278,722	-	(293,100)	14,985,622	-1.92%	-
Warburg Pincus XII	68,307,884	-	650,000	68,957,884	0.95%	-
Total Private Equity	3,006,949,160	40,855,110	11,883,512	3,059,687,782	1.75%	1.36%

Alaska Retirement Management Board
All Non-Participant Directed Plans by Manager
Schedule of Investment Income and Changes in Invested Assets
For the Month Ended July 31, 2020

Real Assets

Farmland

Hancock Agricultural Investment Group	286,156,188	-	-	286,156,188	-	-
UBS Agrivest, LLC	591,492,435	-	-	591,492,435	-	-
Total Farmland	<u>877,648,623</u>	<u>-</u>	<u>-</u>	<u>877,648,623</u>	<u>-</u>	<u>-</u>

Timber

Hancock Natural Resource Group	96,168,325	-	-	96,168,325	-	-
Timberland Invt Resource LLC	260,699,937	-	-	260,699,937	-	-
Total Timber	<u>356,868,262</u>	<u>-</u>	<u>-</u>	<u>356,868,262</u>	<u>-</u>	<u>-</u>

Energy

EIG Energy Fund XIV-A	4,732,542	369,977	-	5,102,519	7.82%	7.82%
EIG Energy Fund XV	13,797,161	(1,733,059)	(2,582,598)	9,481,504	-31.28%	-13.86%
EIG Energy Fund XVI	50,422,442	(1,021,230)	(4,393,809)	45,007,403	-10.74%	-2.12%
Total Energy	<u>68,952,145</u>	<u>(2,384,312)</u>	<u>(6,976,407)</u>	<u>59,591,426</u>	<u>-13.58%</u>	<u>-3.64%</u>

REIT

REIT Transition Account	-	-	-	-	-	-
ARMB REIT	300,980,461	11,480,803	-	312,461,264	3.81%	3.81%
Total REIT	<u>300,980,461</u>	<u>11,480,803</u>	<u>-</u>	<u>312,461,264</u>	<u>3.81%</u>	<u>3.81%</u>

Infrastructure Private

IFM Global Infrastructure Fund-Private	532,901,660	3,642,534	-	536,544,194	0.68%	0.68%
JP Morgan Infrastructure Fund-Private	124,441,676	-	-	124,441,676	-	-
Total Infrastructure Private	<u>657,343,336</u>	<u>3,642,534</u>	<u>-</u>	<u>660,985,870</u>	<u>0.55%</u>	<u>0.55%</u>

Alaska Retirement Management Board
All Non-Participant Directed Plans by Manager
Schedule of Investment Income and Changes in Invested Assets
For the Month Ended July 31, 2020

Real Estate

Core Commingled Accounts						
BlackRock US Core Property Fund	225,894,598	-	-	225,894,598	-	-
JP Morgan	179,950,764	(2,933,457)	(2,205,948)	174,811,359	-2.86%	-1.64%
UBS Trumbull Property Fund	49,909,598	(1,314,984)	(273,679)	48,320,935	-3.18%	-2.64%
Total Core Commingled	455,754,960	(4,248,441)	(2,479,627)	449,026,892	-1.48%	-0.93%
Core Separate Accounts						
UBS Realty	67,343,483	-	-	67,343,483	-	-
Sentinel Separate Account	176,232,776	-	(667,191)	175,565,585	-0.38%	-
UBS Realty	563,214,549	-	(1,147,012)	562,067,537	-0.20%	-
Total Core Separate	806,790,808	-	(1,814,203)	804,976,605	-0.22%	-
Non-Core Commingled Accounts						
Almanac Realty Securities V	86,302	-	-	86,302	-	-
Almanac Realty Securities VII	23,092,381	-	-	23,092,381	-	-
Almanac Realty Securities VIII	6,664,714	-	279,714	6,944,428	4.20%	-
Clarion Ventures 4	32,052,538	-	-	32,052,538	-	-
Colony Investors VIII, L.P.	1,319,602	-	-	1,319,602	-	-
Coventry	283,380	-	-	283,380	-	-
ING Clarion Development Ventures III	1,214,055	-	-	1,214,055	-	-
KKR Real Estate Partners Americas II	13,986,955	-	-	13,986,955	-	-
KKR Real Estate Partners Americas L.P.	7,252,917	-	-	7,252,917	-	-
Silverpeak Legacy Pension Partners II, L.P.	1,230,848	-	-	1,230,848	-	-
Silverpeak Legacy Pension Partners III, L.P.	2,784,231	-	-	2,784,231	-	-
Tishman Speyer Real Estate Venture VI	1,977,531	-	-	1,977,531	-	-
Tishman Speyer Real Estate Venture VII	477,253	-	-	477,253	-	-
Total Non-Core Commingled	92,422,707	-	279,714	92,702,421	0.30%	-
Total Real Estate	1,354,968,475	(4,248,441)	(4,014,116)	1,346,705,918	-0.61%	-0.31%
Total Real Assets	3,616,761,302	8,490,584	(10,990,523)	3,614,261,363	-0.07%	0.24%
Total Assets	\$ 26,517,235,705	\$ 836,312,669	\$ 228,084,376	\$ 27,581,632,750	4.01%	3.14%

ALASKA RETIREMENT MANAGEMENT BOARD

Reporting of Funds by Manager

Participant Directed Plans

Supplemental Annuity Plan
Schedule of Investment Income and Changes in Invested Assets
for the Month Ended
July 31, 2020

	<u>Beginning Invested</u>		<u>Net Contributions</u>		<u>Ending Invested</u>	<u>% Change in</u>	<u>% Change due</u>
	<u>Assets</u>	<u>Investment Income</u>	<u>(Withdrawals)</u>	<u>Transfers In (Out)</u>	<u>Assets</u>	<u>Invested</u>	<u>to Investment</u>
						<u>Assets</u>	<u>Income (1)</u>
Participant Options							
T. Rowe Price							
Stable Value Fund	\$ 459,550,764	\$ 567,431	\$ (2,227,863)	\$ 7,880,531	\$ 465,770,863	1.35%	0.12%
Small Cap Stock Fund	198,116,623	9,314,683	(625,811)	(4,543,347)	202,262,148	2.09%	4.76%
Alaska Balanced Trust	1,099,546,070	25,450,079	(4,107,354)	(3,920,363)	1,116,968,432	1.58%	2.32%
Long Term Balanced Fund	663,501,746	22,951,730	(1,401,368)	(3,555,499)	681,496,609	2.71%	3.47%
AK Target Date 2010 Trust	10,590,997	262,634	657	342,960	11,197,248	5.72%	2.44%
AK Target Date 2015 Trust	77,454,188	2,148,144	(380,690)	67,376	79,289,018	2.37%	2.78%
AK Target Date 2020 Trust	87,633,044	2,810,800	(325,573)	(734,507)	89,383,764	2.00%	3.23%
AK Target Date 2025 Trust	94,071,289	3,437,088	65,837	(650,650)	96,923,564	3.03%	3.67%
AK Target Date 2030 Trust	69,240,912	2,812,886	(1,360)	(4,682)	72,047,756	4.05%	4.06%
AK Target Date 2035 Trust	66,797,419	2,957,236	203,324	583,202	70,541,181	5.60%	4.40%
AK Target Date 2040 Trust	68,742,462	3,215,832	44,969	111,852	72,115,115	4.91%	4.67%
AK Target Date 2045 Trust	77,615,351	3,790,042	329,164	(116,565)	81,617,992	5.16%	4.88%
AK Target Date 2050 Trust	86,960,122	4,236,954	(144,525)	(292,075)	90,760,476	4.37%	4.88%
AK Target Date 2055 Trust	84,655,008	4,141,594	829,844	(54,697)	89,571,749	5.81%	4.87%
AK Target Date 2060 Trust	3,086,003	151,854	117,540	(66,557)	3,288,840	6.57%	4.88%
AK Target Date 2065 Trust	676,605	31,370	71,481	(137,459)	641,997	-5.11%	4.87%
Total Investments with T. Rowe Price	<u>3,148,238,603</u>	<u>88,280,357</u>	<u>(7,551,728)</u>	<u>(5,090,480)</u>	<u>3,223,876,752</u>		
State Street Global Advisors							
Money Market	69,896,923	5,542	(273,612)	1,765,609	71,394,462	2.14%	0.01%
S&P 500 Stock Index Fund Series A	416,742,379	23,443,952	(1,361,836)	(2,107,120)	436,717,375	4.79%	5.65%
Russell 3000 Index	122,428,623	6,879,126	(50,438)	(4,010,825)	125,246,486	2.30%	5.71%
World Equity Ex-US Index	59,550,511	2,487,420	(45,590)	(3,609,594)	58,382,747	-1.96%	4.31%
Total Investments with SSgA	<u>668,618,436</u>	<u>32,816,040</u>	<u>(1,731,476)</u>	<u>(7,961,930)</u>	<u>691,741,070</u>		
BlackRock							
Passive U.S. Bond Index Fund	192,351,961	2,916,242	(408,475)	8,174,176	203,033,904	5.55%	1.49%
Strategic Completion Fund	33,732,592	1,070,405	(173,052)	(838,180)	33,791,765	0.18%	3.22%
Total Investments with BlackRock	<u>226,084,553</u>	<u>3,986,647</u>	<u>(581,527)</u>	<u>7,335,996</u>	<u>236,825,669</u>		
Brandes/Baillie Gifford (2)							
AK International Equity Fund	77,928,540	3,217,377	(197,644)	2,562,615	83,510,888	7.16%	4.07%
Northern Trust							
Environmental, Social, and Governance Fund	105,588,087	4,376,496	(334,814)	3,153,799	112,783,568	6.81%	4.09%
Total All Funds	<u>\$ 4,226,458,219</u>	<u>\$ 132,676,917</u>	<u>\$ (10,397,189)</u>	<u>\$ -</u>	<u>\$ 4,348,737,947</u>	2.89%	3.14%

Notes: Source data provided by the record keeper, Empower Retirement.

(1) Income divided by beginning assets plus half of net contributions/(withdrawals). Actual returns are calculated by Callan and Associates.

(2) This investment is comprised of two funds, Brandes International Equity Fund and Baillie Gifford International Equity Fund.

Supplemental Annuity Plan
Schedule of Invested Assets with
Schedule of Investment Income and Changes in Invested Assets
By Month Through the Month Ended
July 31, 2020
\$ (Thousands)

<u>Invested Assets (at fair value)</u>	<u>July</u>
Investments with T. Rowe Price	
Stable Value Fund	\$ 465,771
Small Cap Stock Fund	202,262
Alaska Balanced Trust	1,116,968
Long Term Balanced Fund	681,497
AK Target Date 2010 Trust	11,197
AK Target Date 2015 Trust	79,289
AK Target Date 2020 Trust	89,384
AK Target Date 2025 Trust	96,924
AK Target Date 2030 Trust	72,048
AK Target Date 2035 Trust	70,541
AK Target Date 2040 Trust	72,115
AK Target Date 2045 Trust	81,618
AK Target Date 2050 Trust	90,760
AK Target Date 2055 Trust	89,572
AK Target Date 2060 Trust	3,289
AK Target Date 2065 Trust	642
State Street Global Advisors	
Money Market	71,394
S&P 500 Stock Index Fund Series A	436,717
Russell 3000 Index	125,246
World Equity Ex-US Index	58,383
Investments with BlackRock	
Passive U.S. Bond Index Fund	203,034
Strategic Completion Fund	33,792
Investments with Brandes/Baillie Gifford	
AK International Equity Fund	83,511
Investments with Northern Trust	
Environmental, Social, and Governance Fund	112,784
Total Invested Assets	\$ <u><u>4,348,738</u></u>
<u>Change in Invested Assets</u>	
Beginning Assets	\$ 4,226,458
Investment Earnings	132,677
Net Contributions (Withdrawals)	(10,397)
Ending Invested Assets	\$ <u><u>4,348,738</u></u>

Deferred Compensation Plan
Schedule of Invested Assets and Changes in Invested Assets
for the Month Ended
July 31, 2020

	<u>Beginning Invested</u> <u>Assets</u>	<u>Investment Income</u>	<u>Net Contributions</u> <u>(Withdrawals)</u>	<u>Transfers In (Out)</u>	<u>Ending Invested</u> <u>Assets</u>	<u>% Change in</u> <u>Invested</u> <u>Assets</u>	<u>% Change due</u> <u>to Investment</u> <u>Income (1)</u>
Participant Options							
T. Rowe Price							
Stable Value Fund	\$ 205,421,075	\$ 252,761	\$ (1,778,548)	\$ 1,440,928	\$ 205,336,216	-0.04%	0.12%
Small Cap Stock Fund	110,706,143	5,253,706	(375,438)	(1,310,854)	114,273,557	3.22%	4.78%
Alaska Balanced Trust	28,563,688	655,919	(216,446)	(472,611)	28,530,550	-0.12%	2.32%
Long Term Balanced Fund	78,739,148	2,720,633	(257,492)	(463,495)	80,738,794	2.54%	3.47%
AK Target Date 2010 Trust	3,165,889	79,761	2,198	157,625	3,405,473	7.57%	2.46%
AK Target Date 2015 Trust	9,239,929	261,395	5,022	395,590	9,901,936	7.16%	2.77%
AK Target Date 2020 Trust	22,475,316	722,987	29,651	(126,090)	23,101,864	2.79%	3.22%
AK Target Date 2025 Trust	22,925,833	842,864	60,224	168,495	23,997,416	4.67%	3.66%
AK Target Date 2030 Trust	13,176,551	534,444	6,882	(27,900)	13,689,977	3.90%	4.06%
AK Target Date 2035 Trust	8,786,065	387,358	61,912	14,394	9,249,729	5.28%	4.39%
AK Target Date 2040 Trust	9,369,593	437,228	16,098	(55,772)	9,767,147	4.24%	4.68%
AK Target Date 2045 Trust	7,136,943	344,971	69,882	(213,440)	7,338,356	2.82%	4.88%
AK Target Date 2050 Trust	4,824,935	237,199	107,005	(14,234)	5,154,905	6.84%	4.87%
AK Target Date 2055 Trust	4,617,253	225,930	79,005	(16,335)	4,905,853	6.25%	4.86%
AK Target Date 2060 Trust	850,733	41,529	11,108	(13,451)	889,919	4.61%	4.89%
AK Target Date 2065 Trust	175,763	8,679	6,057	(9,467)	181,032	3.00%	4.99%
Total Investments with T. Rowe Price	<u>530,174,857</u>	<u>13,007,364</u>	<u>(2,172,880)</u>	<u>(546,617)</u>	<u>540,462,724</u>		
State Street Global Advisors							
Money Market	23,138,749	1,824	(286,366)	449,018	23,303,225	0.71%	0.01%
S&P 500 Stock Index	213,750,184	12,051,477	(205,227)	(630,052)	224,966,382	5.25%	5.65%
Russell 3000 Index	37,554,156	2,120,490	(67,976)	(611,646)	38,995,024	3.84%	5.70%
World Equity Ex-US Index	18,351,310	762,399	(45,135)	(1,092,751)	17,975,823	-2.05%	4.29%
Total Investments with SSgA	<u>292,794,399</u>	<u>14,936,190</u>	<u>(604,704)</u>	<u>(1,885,431)</u>	<u>305,240,454</u>		
BlackRock							
Passive U.S. Bond Index Fund	86,026,173	1,293,542	(167,254)	2,147,065	89,299,526	3.81%	1.49%
Strategic Completion Fund	14,844,829	474,084	(190,182)	(288,901)	14,839,830	-0.03%	3.25%
Total Investments with BlackRock	<u>100,871,002</u>	<u>1,767,626</u>	<u>(357,436)</u>	<u>1,858,164</u>	<u>104,139,356</u>		
Brandes/Baillie Gifford (2)							
AK International Equity Fund	35,724,972	1,479,546	(137,666)	709,673	37,776,525	5.74%	4.11%
Northern Trust							
Environmental, Social, and Governance Fund	39,401,107	1,621,646	(148,538)	(135,789)	40,738,426	3.39%	4.13%
Total All Funds	<u>\$ 998,966,337</u>	<u>\$ 32,812,372</u>	<u>\$ (3,421,224)</u>	<u>\$ -</u>	<u>\$ 1,028,357,485</u>	2.94%	3.29%

Notes: Source data provided by the record keeper, Empower Retirement.

(1) Income divided by beginning assets plus half of net contributions/(withdrawals). Actual returns are calculated by Callan and Associates.

(2) This investment is comprised of two funds, Brandes International Equity Fund and Baillie Gifford International Equity Fund.

Deferred Compensation Plan
Schedule of Invested Assets with
Schedule of Investment Income and Changes in Invested Assets
By Month Through the Month Ended
July 31, 2020
\$ (Thousands)

<u>Invested Assets (at fair value)</u>	<u>July</u>
Investments with T. Rowe Price	
Stable Value Fund	\$ 205,336
Small Cap Stock Fund	114,274
Alaska Balanced Trust	28,531
Long Term Balanced Fund	80,739
AK Target Date 2010 Trust	3,405
AK Target Date 2015 Trust	9,902
AK Target Date 2020 Trust	23,102
AK Target Date 2025 Trust	23,997
AK Target Date 2030 Trust	13,690
AK Target Date 2035 Trust	9,250
AK Target Date 2040 Trust	9,767
AK Target Date 2045 Trust	7,338
AK Target Date 2050 Trust	5,155
AK Target Date 2055 Trust	4,906
AK Target Date 2060 Trust	890
AK Target Date 2065 Trust	181
State Street Global Advisors	
Money Market	23,303
S&P 500 Stock Index	224,966
Russell 3000 Index	38,995
World Equity Ex-US Index	17,976
Investments with BlackRock	
Passive U.S. Bond Index Fund	89,300
Strategic Completion Fund	14,840
Investments with Brandes/Baillie Gifford	
AK International Equity Fund	37,777
Investments with Northern Trust	
Environmental, Social, and Governance Fund	40,738
Total Invested Assets	\$ <u>1,028,357</u>
<u>Change in Invested Assets</u>	
Beginning Assets	\$ 998,966
Investment Earnings	32,812
Net Contributions (Withdrawals)	(3,421)
Ending Invested Assets	\$ <u>1,028,357</u>

Defined Contribution Retirement - Participant Directed PERS
Schedule of Investment Income and Changes in Invested Assets
for the Month Ended
July 31, 2020

	<u>Beginning Invested Assets</u>	<u>Investment Income</u>	<u>Net Contributions (Withdrawals)</u>	<u>Transfers In (Out)</u>	<u>Ending Invested Assets</u>	<u>% Change in Invested Assets</u>	<u>% Change due to Investment Income (1)</u>
Participant Options							
T. Rowe Price							
Stable Value Fund	\$ 76,042,286	\$ 94,142	\$ (32,814)	\$ 3,952,256	\$ 80,055,870	5.28%	0.12%
Small Cap Stock Fund	93,604,557	4,408,818	151,202	(2,191,094)	95,973,483	2.53%	4.76%
Alaska Balanced Trust	7,291,792	159,967	(133,934)	(1,146,104)	6,171,721	-15.36%	2.40%
Long Term Balanced Fund	6,379,093	221,314	(137,019)	(23,784)	6,439,604	0.95%	3.51%
AK Target Date 2010 Trust	2,983,831	73,221	21,283	1,314	3,079,649	3.21%	2.44%
AK Target Date 2015 Trust	11,966,726	330,720	7,807	(208,658)	12,096,595	1.09%	2.79%
AK Target Date 2020 Trust	38,380,019	1,232,156	(120,511)	43,145	39,534,809	3.01%	3.21%
AK Target Date 2025 Trust	65,984,142	2,423,449	379,988	(288,596)	68,498,983	3.81%	3.67%
AK Target Date 2030 Trust	70,176,816	2,855,376	354,639	(65,159)	73,321,672	4.48%	4.06%
AK Target Date 2035 Trust	85,786,229	3,784,762	706,573	(246,927)	90,030,637	4.95%	4.40%
AK Target Date 2040 Trust	100,266,494	4,692,415	770,533	(208,782)	105,520,660	5.24%	4.67%
AK Target Date 2045 Trust	128,132,121	6,270,458	1,099,064	(332,740)	135,168,903	5.49%	4.88%
AK Target Date 2050 Trust	152,461,691	7,460,790	1,432,778	(290,385)	161,064,874	5.64%	4.88%
AK Target Date 2055 Trust	153,152,583	7,511,186	2,150,860	(238,103)	162,576,526	6.15%	4.87%
AK Target Date 2060 Trust	2,050,248	101,119	178,564	(55,116)	2,274,815	10.95%	4.79%
AK Target Date 2065 Trust	565,539	28,458	59,357	-	653,354	15.53%	4.78%
Total Investments with T. Rowe Price	<u>995,224,167</u>	<u>41,648,351</u>	<u>6,888,370</u>	<u>(1,298,733)</u>	<u>1,042,462,155</u>		
State Street Global Advisors							
Money Market	13,716,456	1,083	(177,464)	26,459	13,566,534	-1.09%	0.01%
S&P 500 Stock Index Fund Series A	57,112,213	3,298,567	364,520	3,269,007	64,044,307	12.14%	5.60%
Russell 3000 Index	75,077,942	4,228,525	187,379	(2,669,926)	76,823,920	2.33%	5.73%
US Real Estate Investment Trust Index	-	-	-	-	-	0.00%	0.00%
US Treasury Inflation Protected Securities Index	-	-	-	-	-	0.00%	0.00%
World Equity Ex-US Index	56,509,250	2,357,760	88,864	(4,673,347)	54,282,527	-3.94%	4.35%
Total Investments with SSgA	<u>202,415,861</u>	<u>9,885,935</u>	<u>463,299</u>	<u>(4,047,807)</u>	<u>208,717,288</u>		
BlackRock							
Passive U.S. Bond Index Fund	84,011,272	1,284,485	66,910	4,057,453	89,420,120	6.44%	1.49%
Strategic Completion Fund	4,006,300	129,203	34,599	(36,302)	4,133,800	3.18%	3.23%
Total Investments with BlackRock	<u>88,017,572</u>	<u>1,413,688</u>	<u>101,509</u>	<u>4,021,151</u>	<u>93,553,920</u>		
Brandes/Baillie Gifford (2)							
AK International Equity Fund	56,316,707	2,332,512	86,359	1,696,388	60,431,966	7.31%	4.08%
Northern Trust							
Environmental, Social, and Governance Fund	52,916,169	2,189,628	11,968	(370,999)	54,746,766	3.46%	4.15%
Total All Funds	<u>\$ 1,394,890,476</u>	<u>\$ 57,470,114</u>	<u>\$ 7,551,505</u>	<u>\$ -</u>	<u>\$ 1,459,912,095</u>	4.66%	4.11%

Notes: Source data provided by the record keeper, Empower Retirement.

(1) Income divided by beginning assets plus half of net contributions/(withdrawals). Actual returns are calculated by Callan and Associates.

(2) This investment is comprised of two funds, Brandes International Equity Fund and Baillie Gifford International Equity Fund.

Defined Contribution Retirement - Participant Directed PERS
Schedule of Invested Assets with
Schedule of Investment Income and Changes in Invested Assets
By Month Through the Month Ended
July 31, 2020
\$ (Thousands)

<u>Invested Assets (at fair value)</u>	<u>July</u>
Investments with T. Rowe Price	
Stable Value Fund	\$ 80,056
Small Cap Stock Fund	95,973
Alaska Balanced Trust	6,172
Long Term Balanced Fund	6,440
AK Target Date 2010 Trust	3,080
AK Target Date 2015 Trust	12,097
AK Target Date 2020 Trust	39,535
AK Target Date 2025 Trust	68,499
AK Target Date 2030 Trust	73,322
AK Target Date 2035 Trust	90,031
AK Target Date 2040 Trust	105,521
AK Target Date 2045 Trust	135,169
AK Target Date 2050 Trust	161,065
AK Target Date 2055 Trust	162,577
AK Target Date 2060 Trust	2,275
AK Target Date 2065 Trust	653
State Street Global Advisors	
Money Market	13,567
S&P 500 Stock Index Fund Series A	64,044
Russell 3000 Index	76,824
World Equity Ex-US Index	54,283
Investments with BlackRock	
Passive U.S. Bond Index Fund	89,420
Strategic Completion Fund	4,134
Investments with Brandes/Baillie Gifford	
AK International Equity Fund	60,432
Investments with Northern Trust	
Environmental, Social, and Governance Fund	54,747
Total Invested Assets	\$ <u>1,459,912</u>
<u>Change in Invested Assets</u>	
Beginning Assets	\$ 1,394,890
Investment Earnings	57,470
Net Contributions (Withdrawals)	7,552
Ending Invested Assets	\$ <u>1,459,912</u>

Defined Contribution Retirement - Participant Directed TRS
Schedule of Investment Income and Changes in Invested Assets
for the Month Ended
July 31, 2020

	<u>Beginning Invested</u> <u>Assets</u>	<u>Investment Income</u>	<u>Net Contributions</u> <u>(Withdrawals)</u>	<u>Transfers In (Out)</u>	<u>Ending Invested</u> <u>Assets</u>	<u>% Change in</u> <u>Invested</u> <u>Assets</u>	<u>% Change due</u> <u>to Investment</u> <u>Income (1)</u>
Participant Options							
T. Rowe Price							
Stable Value Fund	\$ 29,792,706	\$ 37,060	\$ 102,191	\$ 1,392,481	\$ 31,324,438	5.14%	0.12%
Small Cap Stock Fund	39,441,560	1,858,404	185,027	(844,920)	40,640,071	3.04%	4.75%
Alaska Balanced Trust	1,914,117	40,467	13,303	(512,298)	1,455,589	-23.96%	2.43%
Long Term Balanced Fund	2,413,583	83,769	16,799	4,033	2,518,184	4.33%	3.46%
AK Target Date 2010 Trust	1,005,267	24,431	(2,716)	-	1,026,982	2.16%	2.43%
AK Target Date 2015 Trust	3,826,441	106,426	39,965	-	3,972,832	3.83%	2.77%
AK Target Date 2020 Trust	11,739,254	377,336	101,133	(84,845)	12,132,878	3.35%	3.21%
AK Target Date 2025 Trust	21,124,827	777,249	158,440	(157,571)	21,902,945	3.68%	3.68%
AK Target Date 2030 Trust	26,636,511	1,086,652	251,320	(31,903)	27,942,580	4.90%	4.06%
AK Target Date 2035 Trust	37,308,481	1,651,653	479,687	(108,058)	39,331,763	5.42%	4.41%
AK Target Date 2040 Trust	42,316,439	1,983,139	382,960	(29,459)	44,653,079	5.52%	4.67%
AK Target Date 2045 Trust	61,264,916	2,995,987	687,120	(221,869)	64,726,154	5.65%	4.87%
AK Target Date 2050 Trust	86,501,359	4,238,384	810,611	71,613	91,621,967	5.92%	4.87%
AK Target Date 2055 Trust	52,274,314	2,572,376	871,631	14,123	55,732,444	6.62%	4.88%
AK Target Date 2060 Trust	594,969	29,287	17,945	-	642,201	7.94%	4.85%
AK Target Date 2065 Trust	2,903	231	1,843	61,902	66,879	2203.79%	0.66%
Total Investments with T. Rowe Price	<u>418,157,647</u>	<u>17,862,851</u>	<u>4,117,259</u>	<u>(446,771)</u>	<u>439,690,986</u>		
State Street Global Advisors							
Money Market	4,275,553	348	34,003	283,266	4,593,170	7.43%	0.01%
S&P 500 Stock Index Fund Series A	18,352,453	1,064,075	141,485	1,355,997	20,914,010	13.96%	5.57%
Russell 3000 Index	32,108,561	1,811,193	185,922	(1,147,134)	32,958,542	2.65%	5.73%
World Equity Ex-US Index	25,136,721	1,049,387	121,583	(2,073,578)	24,234,113	-3.59%	4.34%
Total Investments with SSgA	<u>79,873,288</u>	<u>3,925,003</u>	<u>482,993</u>	<u>(1,581,449)</u>	<u>82,699,835</u>		
BlackRock							
Passive U.S. Bond Index Fund	34,619,775	527,512	134,170	1,251,744	36,533,201	5.53%	1.49%
Strategic Completion Fund	1,236,137	40,968	16,841	50,993	1,344,939	8.80%	3.23%
Total Investments with BlackRock	<u>35,855,912</u>	<u>568,480</u>	<u>151,011</u>	<u>1,302,737</u>	<u>37,878,140</u>		
Brandes/Baillie Gifford (2)							
AK International Equity Fund	24,387,074	1,010,243	112,147.00	928,162	26,437,626	8.41%	4.06%
Northern Trust							
Environmental, Social, and Governance Fund	22,840,121	945,411	80,366.00	(202,679)	23,663,219	3.60%	4.15%
Total All Funds	<u>\$ 581,114,042</u>	<u>\$ 24,311,988</u>	<u>\$ 4,943,776</u>	<u>\$ -</u>	<u>\$ 610,369,806</u>	5.03%	4.17%

Notes: Source data provided by the record keeper, Empower Retirement.

(1) Income divided by beginning assets plus half of net contributions/(withdrawals). Actual returns are calculated by Callan and Associates.

(2) This investment is comprised of two funds, Brandes International Equity Fund and Baillie Gifford International Equity Fund.

Defined Contribution Retirement - Participant Directed TRS
Schedule of Invested Assets with
Schedule of Investment Income and Changes in Invested Assets
By Month Through the Month Ended
July 31, 2020
\$ (Thousands)

<u>Invested Assets (at fair value)</u>	<u>July</u>
Investments with T. Rowe Price	
Stable Value Fund	\$ 31,324
Small Cap Stock Fund	40,640
Alaska Balanced Trust	1,456
Long Term Balanced Fund	2,518
AK Target Date 2010 Trust	1,027
AK Target Date 2015 Trust	3,973
AK Target Date 2020 Trust	12,133
AK Target Date 2025 Trust	21,903
AK Target Date 2030 Trust	27,943
AK Target Date 2035 Trust	39,332
AK Target Date 2040 Trust	44,653
AK Target Date 2045 Trust	64,726
AK Target Date 2050 Trust	91,622
AK Target Date 2055 Trust	55,732
AK Target Date 2060 Trust	642
AK Target Date 2065 Trust	67
State Street Global Advisors	
Money Market	4,593
S&P 500 Stock Index Fund Series A	20,914
Russell 3000 Index	32,959
World Equity Ex-US Index	24,234
Investments with BlackRock	
Passive U.S. Bond Index Fund	36,533
Strategic Completion Fund	1,345
Investments with Brandes/Baillie Gifford	
AK International Equity Fund	26,438
Investments with Northern Trust	
Environmental, Social, and Governance Fund	23,663
Total Invested Assets	\$ <u>610,370</u>
<u>Change in Invested Assets</u>	
Beginning Assets	\$ 581,114
Investment Earnings	24,312
Net Contributions (Withdrawals)	4,944
Ending Invested Assets	\$ <u>610,370</u>

ALASKA RETIREMENT MANAGEMENT BOARD

FINANCIAL REPORT

(Supplement to the Treasury Division Report)

As of June 30, 2020

Prepared by the Division of Retirement & Benefits

ALASKA RETIREMENT MANAGEMENT BOARD
SCHEDULE OF NON-INVESTMENT CHANGES BY FUND
(Supplement to the Treasury Division Report)
For the Twelve Months Ending June 30, 2020

	Contributions				Expenditures				Net
	Contributions EE and ER	State of Alaska	Other	Total Contributions	Benefits	Refunds & Disbursements	Administrative & Investment	Total Expenditures	Contributions/ (Withdrawals)
Public Employees' Retirement System (PERS)									
<u>Defined Benefit Plans:</u>									
Retirement Trust	\$ 356,041,735	\$ 159,055,000	\$ 125,210	\$ 515,221,945	\$ (891,894,472)	\$ (10,224,503)	\$ (5,640,210)	\$ (907,759,185)	\$ (392,537,240)
Retirement Health Care Trust	110,979,471	-	84,820,374	195,799,845	(457,465,806)	-	(18,417,705)	(475,883,511)	(280,083,666)
Total Defined Benefit Plans	467,021,206	159,055,000	84,945,584	711,021,790	(1,349,360,278)	(10,224,503)	(24,057,915)	(1,383,642,696)	(672,620,906)
<u>Defined Contribution Plans:</u>									
Participant Directed Retirement	179,898,986	-	-	179,898,986	-	(54,509,549)	(4,363,516)	(58,873,065)	121,025,921
Health Reimbursement Arrangement ^(a)	45,228,913	-	-	45,228,913	(170,636)	-	(135,205)	(305,841)	44,923,072
Retiree Medical Plan ^(a)	18,081,830	-	63,847	18,145,677	(358,061)	-	(61,694)	(419,755)	17,725,922
Occupational Death and Disability: ^(a)									
All Others	3,094,537	-	-	3,094,537	(107,845)	-	(7,743)	(115,588)	2,978,949
Peace Officers and Firefighters	1,390,081	-	-	1,390,081	(384,967)	-	(3,436)	(388,403)	1,001,678
Total Defined Contribution Plans	247,694,347	-	63,847	247,758,194	(1,021,509)	(54,509,549)	(4,571,594)	(60,102,652)	187,655,542
Total PERS	714,715,553	159,055,000	85,009,431	958,779,984	(1,350,381,787)	(64,734,052)	(28,629,509)	(1,443,745,348)	(484,965,364)
Teachers' Retirement System (TRS)									
<u>Defined Benefit Plans:</u>									
Retirement Trust	67,779,814	141,129,000	32,160	208,940,974	(490,745,646)	(1,687,599)	(2,949,492)	(495,382,737)	(286,441,763)
Retirement Health Care Trust	19,345,169	-	28,867,805	48,212,974	(140,021,191)	-	(6,732,933)	(146,754,124)	(98,541,150)
Total Defined Benefit Plans	87,124,983	141,129,000	28,899,965	257,153,948	(630,766,837)	(1,687,599)	(9,682,425)	(642,136,861)	(384,982,913)
<u>Defined Contribution Plans:</u>									
Participant Directed Retirement	61,622,907	-	-	61,622,907	-	(16,948,863)	(1,625,163)	(18,574,026)	43,048,881
Health Reimbursement Arrangement ^(a)	12,230,031	-	-	12,230,031	(57,152)	-	(40,810)	(97,962)	12,132,069
Retiree Medical Plan ^(a)	4,431,954	-	3,798	4,435,752	(105,207)	-	(21,479)	(126,686)	4,309,066
Occupational Death and Disability ^(a)	328,997	-	-	328,997	(24,290)	-	(1,150)	(25,440)	303,557
Total Defined Contribution Plans	78,613,889	-	3,798	78,617,687	(186,649)	(16,948,863)	(1,688,602)	(18,824,114)	59,793,573
Total TRS	165,738,872	141,129,000	28,903,763	335,771,635	(630,953,486)	(18,636,462)	(11,371,027)	(660,960,975)	(325,189,340)
Judicial Retirement System (JRS)									
Defined Benefit Plan Retirement Trust	6,664,973	5,010,000	-	11,674,973	(14,131,878)	-	(138,866)	(14,270,744)	(2,595,771)
Defined Benefit Retirement Health Care Trust	657,786	-	355,537	1,013,323	(1,428,025)	-	(74,592)	(1,502,617)	(489,294)
Total JRS	7,322,759	5,010,000	355,537	12,688,296	(15,559,903)	-	(213,458)	(15,773,361)	(3,085,065)
National Guard/Naval Militia Retirement System (NGNMRS)									
Defined Benefit Plan Retirement Trust ^(a)	860,686	-	-	860,686	(1,765,681)	-	(113,825)	(1,879,506)	(1,018,820)
Other Participant Directed Plans									
Supplemental Annuity Plan	175,097,303	-	-	175,097,303	-	(249,748,642)	(7,265,908)	(257,014,550)	(81,917,247)
Deferred Compensation Plan	47,558,707	-	-	47,558,707	-	(71,025,871)	(1,981,711)	(73,007,582)	(25,448,875)
Total All Funds	1,111,293,880	305,194,000	114,268,731	1,530,756,611	(1,998,660,857)	(404,145,027)	(49,575,438)	(2,452,381,322)	(921,624,711)
Total Non-Participant Directed	647,115,977	305,194,000	114,268,731	1,066,578,708	(1,998,660,857)	(11,912,102)	(34,339,140)	(2,044,912,099)	(978,333,391)
Total Participant Directed	464,177,903	-	-	464,177,903	-	(392,232,925)	(15,236,298)	(407,469,223)	56,708,680
Total All Funds	\$ 1,111,293,880	\$ 305,194,000	\$ 114,268,731	\$ 1,530,756,611	\$ (1,998,660,857)	\$ (404,145,027)	\$ (49,575,438)	\$ (2,452,381,322)	\$ (921,624,711)

(a) Employer only contributions.

ALASKA RETIREMENT MANAGEMENT BOARD
SCHEDULE OF NON-INVESTMENT CHANGES BY FUND
(Supplement to the Treasury Division Report)
For the Month Ended June 30, 2020

	Contributions				Expenditures				Net
	Contributions EE and ER	State of Alaska	Other	Total Contributions	Benefits	Refunds & Disbursements	Administrative & Investment	Total Expenditures	Contributions/ (Withdrawals)
<u>Public Employees' Retirement System (PERS)</u>									
<u>Defined Benefit Plans:</u>									
Retirement Trust	\$ 35,312,728	\$ -	\$ 570	\$ 35,313,298	\$ (75,463,559)	\$ (719,001)	\$ (242,101)	\$ (76,424,661)	\$ (41,111,363)
Retirement Health Care Trust	11,233,795	-	14,401,399	25,635,194	(40,129,445)	-	(2,253,169)	(42,382,614)	(16,747,420)
Total Defined Benefit Plans	46,546,523	-	14,401,969	60,948,492	(115,593,004)	(719,001)	(2,495,270)	(118,807,275)	(57,858,783)
<u>Defined Contribution Plans:</u>									
Participant Directed Retirement	18,592,027	-	-	18,592,027	-	(4,150,063)	(132,407)	(4,282,470)	14,309,557
Health Reimbursement Arrangement ^(a)	4,493,256	-	-	4,493,256	(18,858)	-	(4,670)	(23,528)	4,469,728
Retiree Medical Plan ^(a)	1,898,878	-	10,644	1,909,522	(44,846)	-	(4,188)	(49,034)	1,860,488
Occupational Death and Disability: ^(a)									
All Others	318,563	-	-	318,563	(8,989)	-	(262)	(9,251)	309,312
Peace Officers and Firefighters	143,521	-	-	143,521	(31,147)	-	(112)	(31,259)	112,262
Total Defined Contribution Plans	25,446,245	-	10,644	25,456,889	(103,840)	(4,150,063)	(141,639)	(4,395,542)	21,061,347
Total PERS	71,992,768	-	14,412,613	86,405,381	(115,696,844)	(4,869,064)	(2,636,909)	(123,202,817)	(36,797,436)
<u>Teachers' Retirement System (TRS)</u>									
<u>Defined Benefit Plans:</u>									
Retirement Trust	10,493,056	-	3,353	10,496,409	(41,233,064)	(4,385)	(130,232)	(41,367,681)	(30,871,272)
Retirement Health Care Trust	3,125,661	-	4,925,053	8,050,714	(12,088,131)	-	(757,772)	(12,845,903)	(4,795,189)
Total Defined Benefit Plans	13,618,717	-	4,928,406	18,547,123	(53,321,195)	(4,385)	(888,004)	(54,213,584)	(35,666,461)
<u>Defined Contribution Plans:</u>									
Participant Directed Retirement	9,712,676	-	-	9,712,676	-	(1,104,806)	(51,467)	(1,156,273)	8,556,403
Health Reimbursement Arrangement ^(a)	1,829,753	-	-	1,829,753	(2,902)	-	(1,401)	(4,303)	1,825,450
Retiree Medical Plan ^(a)	718,447	-	923	719,370	(7,308)	-	(1,075)	(8,383)	710,987
Occupational Death and Disability ^(a)	52,181	-	-	52,181	(2,024)	-	(38)	(2,062)	50,119
Total Defined Contribution Plans	12,313,057	-	923	12,313,980	(12,234)	(1,104,806)	(53,981)	(1,171,021)	11,142,959
Total TRS	25,931,774	-	4,929,329	30,861,103	(53,333,429)	(1,109,191)	(941,985)	(55,384,605)	(24,523,502)
<u>Judicial Retirement System (JRS)</u>									
Defined Benefit Plan Retirement Trust	437,540	-	-	437,540	(1,210,113)	-	(6,445)	(1,216,558)	(779,018)
Defined Benefit Retirement Health Care Trust	45,325	-	50,563	95,888	(103,049)	-	(7,100)	(110,149)	(14,261)
Total JRS	482,865	-	50,563	533,428	(1,313,162)	-	(13,545)	(1,326,707)	(793,279)
<u>National Guard/Naval Militia Retirement System (NGNMRS)</u>									
Defined Benefit Plan Retirement Trust ^(a)	-	-	-	-	(102,602)	-	(3,959)	(106,561)	(106,561)
<u>Other Participant Directed Plans</u>									
Supplemental Annuity Plan	20,583,517	-	-	20,583,517	-	(24,293,566)	(389,355)	(24,682,921)	(4,099,404)
Deferred Compensation Plan	5,295,558	-	-	5,295,558	-	(6,339,493)	(139,348)	(6,478,841)	(1,183,283)
Total All Funds	124,286,482	-	19,392,505	143,678,987	(170,446,037)	(36,611,314)	-	(211,182,452)	(67,503,465)
Total Non-Participant Directed	70,102,704	-	19,392,505	89,495,209	(170,446,037)	(723,386)	(3,412,524)	(174,581,947)	(85,086,738)
Total Participant Directed	54,183,778	-	-	54,183,778	-	(35,887,928)	(712,577)	(36,600,505)	17,583,273
Total All Funds	\$ 124,286,482	\$ -	\$ 19,392,505	\$ 143,678,987	\$ (170,446,037)	\$ (36,611,314)	\$ (4,125,101)	\$ (211,182,452)	\$ (67,503,465)

(a) Employer only contributions.

ALASKA RETIREMENT MANAGEMENT BOARD
SCHEDULE OF NON-INVESTMENT CHANGES BY FUND
(Supplement to the Treasury Division Report)
For the Twelve Months Ending June 30, 2020

PARTICIPANT DIRECTED DISBURSEMENTS BY PLAN AND TYPE

Type	PERS DCR Plan	TRS DCR Plan	Supplemental Annuity Plan	Deferred Compensation	TOTAL	% of Total
Payment to Beneficiary	\$ 23,797	\$ -	\$ 480,857	\$ 150,694	\$ 655,348	0.2%
Death Benefit	658,752	29,349	16,350,996	3,351,539	20,390,636	5.2%
Disability / Hardship	64,368	-	111,265	292,852	468,485	0.1%
Minimum Required Distribution	140,165	37,681	9,664,574	3,358,096	13,200,516	3.4%
Qualified Domestic Relations Order	328,331	237,584	5,600,240	633,017	6,799,172	1.7%
Separation from Service / Retirement	53,294,136	16,644,249	209,101,875	61,710,382	340,750,642	86.9%
Purchase of Service Credit	-	-	950,966	318,277	1,269,243	0.3%
Transfer to a Qualifying Plan	-	-	-	-	-	0.0%
CARES Act Distributions	-	-	7,487,869	1,211,014	8,698,883	2.2%
TOTAL	<u>\$ 54,509,549</u>	<u>\$ 16,948,863</u>	<u>\$ 249,748,642</u>	<u>\$ 71,025,871</u>	<u>\$ 392,232,925</u>	<u>100.0%</u>

PERS & TRS PARTICIPANT DIRECTED DISBURSEMENTS BY PLAN AND VESTED PERCENTAGE

Vesting	PERS DCR Plan	TRS DCR Plan	TOTAL	% of Total
100% Vested	\$ 47,002,055	\$ 14,899,913	\$ 61,901,968	86.5%
75% Vested	1,617,399	361,843	1,979,242	2.8%
50% Vested	1,905,403	578,118	2,483,521	3.5%
25% Vested	1,567,640	542,566	2,110,206	3.0%
0% Vested	2,417,052	566,423	2,983,475	4.2%
TOTAL	<u>\$ 54,509,549</u>	<u>\$ 16,948,863</u>	<u>\$ 71,458,412</u>	<u>100.0%</u>

DEFINED BENEFIT REFUNDS BY PLAN, TIER, CONTRIBUTION TYPE AND VESTED STATUS

Contribution Type	PERS DB Pension Plan				TRS DB Pension Plan			JRS	TOTAL
	Tier 1	Tier 2	Tier 3	Total	Tier 1	Tier 2	Total	DB Pension Plan	DB Pension Plan
Mandatory Vested	\$ 363,164	\$ 801,020	\$ 3,640,532	\$ 4,804,716	\$ 62,299	\$ 518,807	\$ 581,106	\$ -	\$ 5,385,822
Mandatory Non-Vested	134,549	261,807	850,546	1,246,902	158,474	911,151	1,069,625	-	2,316,527
Geographic Differential	-	354,935	207,350	562,285	-	-	-	-	562,285
Voluntary Full	479,874	1,389,163	1,483,335	3,352,372	-	-	-	-	3,352,372
Indebtedness, Lagging & Partial	47,325	124,664	86,239	258,228	27	36,841	36,868	-	295,096
TOTAL	<u>\$ 1,024,912</u>	<u>\$ 2,931,589</u>	<u>\$ 6,268,002</u>	<u>\$ 10,224,503</u>	<u>\$ 220,800</u>	<u>\$ 1,466,799</u>	<u>\$ 1,687,599</u>	<u>-</u>	<u>\$ 11,912,102</u>

Notes for the DRB Supplement to the Treasury Report

June 2020

This report is the DRB supplement to the Treasury Division's Financial Report. It expands their "Net Contributions (Withdrawals)" column into contributions and expenditures. It shows contributions received from both employees and employers, contributions from the State of Alaska, and other non-investment income. It also expands expenditures into benefits, refunds & disbursements, and administrative & investment expenditures. The net amount of total contributions and total expenditures, presented as "Net Contributions/(Withdrawals)", agrees with the same column in the Treasury Division's Report. Page one shows the year-to-date totals for the twelve months of Fiscal Year 2020, while page two shows only the month of June 2020.

Highlights – On page one, for the twelve months ending June 30, 2020:

- PERS DB Pension – Average employer and employee contributions of \$29.7 million per month; benefit payments of approximately \$74.3 million per month; refunds average \$852 thousand; and Administrative and Investment expenditures of \$470 thousand per month (DOR and DRB).
- PERS DB Healthcare – Average employer contributions of \$9.2 million per month; other income of \$50.6 million from OptumRx Pharmacy rebates (most recently received in June for 1st Quarter CY2020), \$63 thousand from Medicare drug subsidies, \$15.1 million from monthly EGWP subsidies; \$978 thousand from OptumRX discount and dispensing fee performance, and \$18.1 million from the coverage gap discount program; benefit payments of approximately \$38.1 million per month; and average Administrative and Investment expenditures of \$1.5 million per month (DOR and DRB).
- PERS DC Pension – Average employer and employee contributions of \$15 million per month; participant disbursements average \$4.5 million per month; and average Administrative and Investment expenditures of \$364 thousand per month (DOR and DRB).
- PERS DCR Health – For HRA, RMP, and OD&D, only employer contributions average \$5.6 million per month on behalf of participating employees; benefit payments of approximately \$85 thousand per month. Currently, 65 benefits are being paid from the Occupational Death & Disability plans, 46 retirees are participating in RMP, and 63 retirees are participating in HRA. Administrative and investment expenditures were approximately \$17 thousand per month (DOR and DRB).
- TRS DB Pension - Average employer and employee contributions of \$5.6 million per month; benefit payments of approximately \$40.9 million per month; refunds average \$141 thousand; and average Administrative and Investment expenditures of \$246 thousand per month (DOR and DRB).
- TRS DB Healthcare – Average employer contributions of \$1.6 million per month; other income of \$16.7 million from OptumRx Pharmacy rebates (most recently received in June for 1st Quarter CY2020), \$28 thousand from Medicare drug subsidies; \$5.3 million from monthly EGWP subsidies; \$431 thousand from OptumRx discount and dispensing fee performance, and \$6.4 million from the

coverage gap discount program; benefit payments of approximately \$11.7 million per month; and average Administrative and Investment expenditures of \$561 thousand per month (DOR and DRB).

- TRS DC Pension – Average employer and employee contributions of \$5.1 million per month; participant disbursements average \$1.4 million per month; and average Administrative and investment expenditures of \$135 thousand per month (DOR and DRB).
- TRS DCR Health – For HRA, RMP, and OD&D, only employer contributions average \$1.4 million per month on behalf of participating employees; benefit payments of approximately \$16 thousand per month. Currently, 16 benefits are being paid from the Occupational Death & Disability plans, 17 retirees are participating in RMP, and 19 retirees are participating in HRA. Administrative and investment expenditures were approximately \$5 thousand per month (DOR and DRB).
- JRS Pension – Average employer and employee contributions of \$555 thousand per month; benefit payments of approximately \$1.2 million per month; and average Administrative and Investment expenditures of \$12 thousand per month (DOR and DRB).
- JRS Healthcare – Average employer contributions of \$55 thousand per month; other income of \$219 thousand from OptumRx Pharmacy rebates (most recently received in June for 1st Quarter), \$48 thousand EGWP subsidies; \$26 thousand from OptumRX discount and dispensing fee performance and \$61 thousand from the coverage gap discount program; benefit payments of approximately \$119 thousand per month; and average Administrative and Investment expenditures of \$6 thousand per month (DOR and DRB).
- NGNMRS – Annual contribution from DMVA in the amount of \$861 thousand was received in July; combination of lump-sum and monthly benefit payments of \$147 thousand per month; and average Administrative and Investment expenditures of \$9 thousand per month (DOR and DRB).
- SBS – Average employer and employee contributions and transfers in of \$14.6 million per month. Participant disbursements average of \$20.8 million per month; and average Administrative and Investment expenditures of \$605 thousand per month (DOR and DRB).
- Deferred Compensation – Average member-only contributions and transfers in of \$4.0 million per month; participant disbursements average of \$5.9 million per month; and average Administrative and Investment expenditures of \$165 thousand per month (DOR and DRB).

Highlights – On page two, activity for the one month of June 2020 only:

- PERS DB Healthcare – Other Income of \$15.4 million from OptumRx; \$533 thousand from Aetna rebates; \$63 thousand from Medicare Drug Subsidies and \$2.5 million from EGWP subsidies.
- TRS DB Healthcare – Other Income of \$3.8 million from OptumRx; \$179 thousand from Aetna rebates; \$28 thousand from Medicare Drug Subsidies and \$900 thousand from EGWP subsidies.

- JRS Healthcare – Other Income of \$42 thousand from OptumRx; \$1 thousand from Aetna rebates and \$8 thousand from EGWP subsidies.
- All other funds – Nothing significant to report

If you have any questions or comments, please let me know.

Summary of Significant Other Income, by type and Month
As source data for monthly ARMB Cashflows report

Prescription drug (pharmacy) rebates	Month Received	for Period	PERS ARHCT	PERS RMP	TRS ARHCT	TRS RMP	JRS ARHCT	Total
	7/1/2019	CY2019 Q1 OptumRx	2,597,026	7	871,669	-	17,141	3,485,842
	9/1/2019	CY2019 Q3 OptumRx	9,638,545	7,960	3,185,415	-	40,515	12,872,435
	9/1/2019	CY2018 Q2 Aetna	4,810,146	3,021	1,401,120	1,988	19,029	6,235,304
	9/1/2019	CY2019 Q2 OptumRx	8,650	-	1,310	-	-	9,960
	11/1/2019	CY2019 Q3 OptumRx	2,306,574	-	602,620	-	9,924	2,919,117
	11/1/2019	CY2019 Q3 OptumRx	7,249,627	4,520	2,612,974	-	33,919	9,901,040
	12/1/2019	CY2018 Q4 Aetna	784,824	307	261,370	-	9,476	1,055,976
	3/1/2020	CY2019 Q4 OptumRx	2,454,964	-	630,671	-	11,962	3,097,597
	3/1/2020	CY2019 Q4 OptumRx	7,429,504	5,985	2,706,060	130	34,470	10,176,149
	4/1/2020	CY2018 Q4 Aetna	1,441,563	59	403,522	255	736	1,846,135
	6/1/2020	CY2020 Q1 OptumRx	2,639,070	-	694,999	-	9,250	3,343,318
	6/1/2020	CY2020 Q1 OptumRx	8,709,385	6,640	3,149,942	-	32,135	11,898,102
	6/1/2020	CY2018 Q4 Aetna	532,925	126	179,164	681	1,076	713,972
	Total		50,602,803	28,625	16,700,834	3,053	219,632	67,554,948

Medicare drug subsidies	Month Received	for Period	PERS ARHCT	PERS RMP	TRS ARHCT	TRS RMP	JRS ARHCT	Total
	7/1/2019	CY2013	1,016,466	-	340,421	-	3,811	1,360,698
	4/1/2020	CY2018 CMS	9,459	5	3,104	2	34	12,604
	5/1/2020	CY2018 CMS Refund	(962,514)	(489)	(315,181)	(164)	(3,495)	(1,281,843)
	Total		63,411	(483)	28,344	(162)	349	91,459

EGWP Subsidies	Month Received	for Period	PERS ARHCT	PERS RMP	TRS ARHCT	TRS RMP	JRS ARHCT	Total
	7/1/2019	6/1/2019	1,291,632	2,778	459,155	16	4,420	1,758,003
	8/1/2019	7/1/2019	1,156,060	1,789	414,315	16	3,689	1,575,870
	9/1/2019	8/1/2019	1,268,200	1,705	441,977	16	3,859	1,715,757
	10/1/2019	9/1/2019	1,249,302	1,694	436,180	16	3,857	1,691,050
	11/1/2019	10/1/2019	1,251,932	1,044	436,466	49	3,872	1,693,364
	12/1/2019	11/1/2019	1,251,071	1,947	435,334	111	3,902	1,692,365
	1/1/2020	12/1/2019	1,245,573	1,777	432,667	75	3,902	1,683,995
	2/1/2020	1/1/2020	1,295,210	1,889	456,687	122	4,196	1,758,105
	4/1/2020	2/1/2020	1,292,035	1,901	455,551	122	4,196	1,753,805
	5/1/2020	3/1/2020	1,250,624	1,846	448,946	122	4,072	1,705,610
	6/1/2020	4/1/2020	1,262,676	1,901	451,404	122	4,134	1,720,237
	6/1/2020	5/20/2020	1,257,343	2,005	449,487	121	3,968	1,712,924
	Total		15,071,660	22,276	5,318,170	909	48,069	20,461,084

Discount and dispensing fee performance	Month Received	for Period	PERS ARHCT	PERS RMP	TRS ARHCT	TRS RMP	JRS ARHCT	Total
	4/1/2020	CY2019 OptumRx	977,869	611	431,040	-	26,281	1,435,801
	Total		977,869	611	431,040	-	26,281	1,435,801

Coverage gap discount program	Month Received	for Period	PERS ARHCT	PERS RMP	TRS ARHCT	TRS RMP	JRS ARHCT	Total
	11/1/2019	2nd Quarter CY2019	5,910,974	1,054	2,089,066	-	26,463	8,027,557
	2/1/2020	3rd Quarter CY2019	6,463,495	5,281	2,189,648	-	21,130	8,679,553
	5/1/2020	4th Quarter CY2019	5,729,448	6,445	2,107,806	-	13,612	7,857,311
	Total		18,103,917	12,780	6,386,519	-	61,205	24,564,420

Grand Total			84,819,660	63,808	28,864,908	3,800	355,536	114,107,712
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ALASKA RETIREMENT MANAGEMENT BOARD

FINANCIAL REPORT

(Supplement to the Treasury Division Report)

As of July 31, 2020

Prepared by the Division of Retirement & Benefits

ALASKA RETIREMENT MANAGEMENT BOARD
SCHEDULE OF NON-INVESTMENT CHANGES BY FUND
(Supplement to the Treasury Division Report)
For the One Months Ending July 31, 2020

	Contributions				Expenditures				Net
	Contributions EE and ER	State of Alaska	Other	Total Contributions	Benefits	Refunds & Disbursements	Administrative & Investment	Total Expenditures	Contributions/ (Withdrawals)
Public Employees' Retirement System (PERS)									
<u>Defined Benefit Plans:</u>									
Retirement Pension Trust	\$ 28,318,166	\$ 203,585,000	\$ 1,429	\$ 231,904,595	\$ (76,334,018)	\$ (556,022)	\$ (505,151)	\$ (77,395,191)	\$ 154,509,404
Retirement Health Care Trust	7,481,526	-	1,710,512	9,192,038	(34,717,638)	-	(3,865,468)	(38,583,106)	(29,391,068)
Total Defined Benefit Plans	35,799,692	203,585,000	1,711,941	241,096,633	(111,051,656)	(556,022)	(4,370,619)	(115,978,297)	125,118,336
<u>Defined Contribution Plans:</u>									
Participant Directed Retirement	14,435,027	-	-	14,435,027	-	(5,148,945)	(1,734,577)	(6,883,522)	7,551,505
Health Reimbursement Arrangement ^(a)	3,480,547	-	-	3,480,547	(10,669)	-	(16,496)	(27,165)	3,453,382
Retiree Medical Plan ^(a)	1,464,623	-	2,132	1,466,755	(29,453)	-	(5,986)	(35,439)	1,431,316
Occupational Death and Disability: ^(a)									
All Others	250,952	-	-	250,952	(9,076)	-	(955)	(10,031)	240,921
Peace Officers and Firefighters	118,216	-	-	118,216	(31,400)	-	(409)	(31,809)	86,407
Total Defined Contribution Plans	19,749,365	-	2,132	19,751,497	(80,598)	(5,148,945)	(1,758,423)	(6,987,966)	12,763,531
Total PERS	55,549,057	203,585,000	1,714,073	260,848,130	(111,132,254)	(5,704,967)	(6,129,042)	(122,966,263)	137,881,867
Teachers' Retirement System (TRS)									
<u>Defined Benefit Plans:</u>									
Retirement Pension Trust	7,503,221	134,976,000	605	142,479,826	(41,436,801)	(28,679)	(272,741)	(41,738,221)	100,741,605
Retirement Health Care Trust	2,129,489	-	596,568	2,726,057	(11,211,283)	-	(522,619)	(11,733,902)	(9,007,845)
Total Defined Benefit Plans	9,632,710	134,976,000	597,173	145,205,883	(52,648,084)	(28,679)	(795,360)	(53,472,123)	91,733,760
<u>Defined Contribution Plans:</u>									
Participant Directed Retirement	7,134,498	-	-	7,134,498	-	(1,697,276)	(493,446)	(2,190,722)	4,943,776
Health Reimbursement Arrangement ^(a)	1,309,833	-	-	1,309,833	(2,391)	-	(4,950)	(7,341)	1,302,492
Retiree Medical Plan ^(a)	519,162	-	52	519,214	(2,309)	-	(2,196)	(4,505)	514,709
Occupational Death and Disability ^(a)	37,964	-	-	37,964	(2,025)	-	(136)	(2,161)	35,803
Total Defined Contribution Plans	9,001,457	-	52	9,001,509	(6,725)	(1,697,276)	(500,728)	(2,204,729)	6,796,780
Total TRS	18,634,167	134,976,000	597,225	154,207,392	(52,654,809)	(1,725,955)	(1,296,088)	(55,676,852)	98,530,540
Judicial Retirement System (JRS)									
<u>Defined Benefit Plan Retirement Pension Trust</u>									
Defined Benefit Retirement Pension Trust	434,301	5,145,000	-	5,579,301	(1,191,752)	-	(7,610)	(1,199,362)	4,379,939
Defined Benefit Retirement Health Care Trust	44,934	-	5,168	50,102	(108,829)	-	(4,163)	(112,992)	(62,890)
Total JRS	479,235	5,145,000	5,168	5,629,403	(1,300,581)	-	(11,773)	(1,312,354)	4,317,049
National Guard/Naval Militia Retirement System (NGNMRS)									
<u>Defined Benefit Plan Retirement Pension Trust ^(a)</u>									
Defined Benefit Plan Retirement Pension Trust ^(a)	-	-	-	-	(143,518)	-	(6,281)	(149,799)	(149,799)
Other Participant Directed Plans									
<u>Supplemental Annuity Plan</u>									
Supplemental Annuity Plan	13,543,840	-	-	13,543,840	-	(23,192,339)	(748,690)	(23,941,029)	(10,397,189)
<u>Deferred Compensation Plan</u>									
Deferred Compensation Plan	3,843,829	-	-	3,843,829	-	(7,037,872)	(227,181)	(7,265,053)	(3,421,224)
Total All Funds	92,050,128	343,706,000	2,316,466	438,072,594	(165,231,162)	(37,661,133)	(8,419,055)	(211,311,350)	226,761,244
Total Non-Participant Directed	53,092,934	343,706,000	2,316,466	399,115,400	(165,231,162)	(584,701)	(5,215,161)	(171,031,024)	228,084,376
Total Participant Directed	38,957,194	-	-	38,957,194	-	(37,076,432)	(3,203,894)	(40,280,326)	(1,323,132)
Total All Funds	\$ 92,050,128	\$ 343,706,000	\$ 2,316,466	\$ 438,072,594	\$ (165,231,162)	\$ (37,661,133)	\$ (8,419,055)	\$ (211,311,350)	\$ 226,761,244

(a) Employer only contributions.

ALASKA RETIREMENT MANAGEMENT BOARD
SCHEDULE OF NON-INVESTMENT CHANGES BY FUND
(Supplement to the Treasury Division Report)
For the Month Ended July 31, 2020

	Contributions				Expenditures				Net
	Contributions EE and ER	State of Alaska	Other	Total Contributions	Benefits	Refunds & Disbursements	Administrative & Investment	Total Expenditures	Contributions/ (Withdrawals)
Public Employees' Retirement System (PERS)									
<u>Defined Benefit Plans:</u>									
Retirement Pensions Trust	\$ 28,318,166	\$ 203,585,000	\$ 1,429	\$ 231,904,595	\$ (76,334,018)	\$ (556,022)	\$ (505,151)	\$ (77,395,191)	\$ 154,509,404
Retirement Health Care Trust	7,481,526	-	1,710,512	9,192,038	(34,717,638)	-	(3,865,468)	(38,583,106)	(29,391,068)
Total Defined Benefit Plans	35,799,692	203,585,000	1,711,941	241,096,633	(111,051,656)	(556,022)	(4,370,619)	(115,978,297)	125,118,336
<u>Defined Contribution Plans:</u>									
Participant Directed Retirement	14,435,027	-	-	14,435,027	-	(5,148,945)	(1,734,577)	(6,883,522)	7,551,505
Health Reimbursement Arrangement ^(a)	3,480,547	-	-	3,480,547	(10,669)	-	(16,496)	(27,165)	3,453,382
Retiree Medical Plan ^(a)	1,464,623	-	2,132	1,466,755	(29,453)	-	(5,986)	(35,439)	1,431,316
Occupational Death and Disability: ^(a)									
All Others	250,952	-	-	250,952	(9,076)	-	(955)	(10,031)	240,921
Peace Officers and Firefighters	118,216	-	-	118,216	(31,400)	-	(409)	(31,809)	86,407
Total Defined Contribution Plans	19,749,365	-	2,132	19,751,497	(80,598)	(5,148,945)	(1,758,423)	(6,987,966)	12,763,531
Total PERS	55,549,057	203,585,000	1,714,073	260,848,130	(111,132,254)	(5,704,967)	(6,129,042)	(122,966,263)	137,881,867
Teachers' Retirement System (TRS)									
<u>Defined Benefit Plans:</u>									
Retirement Pensions Trust	7,503,221	134,976,000	605	142,479,826	(41,436,801)	(28,679)	(272,741)	(41,738,221)	100,741,605
Retirement Health Care Trust	2,129,489	-	596,568	2,726,057	(11,211,283)	-	(522,619)	(11,733,902)	(9,007,845)
Total Defined Benefit Plans	9,632,710	134,976,000	597,173	145,205,883	(52,648,084)	(28,679)	(795,360)	(53,472,123)	91,733,760
<u>Defined Contribution Plans:</u>									
Participant Directed Retirement	7,134,498	-	-	7,134,498	-	(1,697,276)	(493,446)	(2,190,722)	4,943,776
Health Reimbursement Arrangement ^(a)	1,309,833	-	-	1,309,833	(2,391)	-	(4,950)	(7,341)	1,302,492
Retiree Medical Plan ^(a)	519,162	-	52	519,214	(2,309)	-	(2,196)	(4,505)	514,709
Occupational Death and Disability ^(a)	37,964	-	-	37,964	(2,025)	-	(136)	(2,161)	35,803
Total Defined Contribution Plans	9,001,457	-	52	9,001,509	(6,725)	(1,697,276)	(500,728)	(2,204,729)	6,796,780
Total TRS	18,634,167	134,976,000	597,225	154,207,392	(52,654,809)	(1,725,955)	(1,296,088)	(55,676,852)	98,530,540
Judicial Retirement System (JRS)									
<u>Defined Benefit Plan Retirement Pension Trust</u>									
Defined Benefit Retirement Health Care Trust	434,301	5,145,000	-	5,579,301	(1,191,752)	-	(7,610)	(1,199,362)	4,379,939
Defined Benefit Retirement Health Care Trust	44,934	-	5,168	50,102	(108,829)	-	(4,163)	(112,992)	(62,890)
Total JRS	479,235	5,145,000	5,168	5,629,403	(1,300,581)	-	(11,773)	(1,312,354)	4,317,049
National Guard/Naval Militia Retirement System (NGNMRS)									
<u>Defined Benefit Plan Retirement Pension Trust ^(a)</u>									
	-	-	-	-	(143,518)	-	(6,281)	(149,799)	(149,799)
Other Participant Directed Plans									
<u>Supplemental Annuity Plan</u>									
	13,543,840	-	-	13,543,840	-	(23,192,339)	(748,690)	(23,941,029)	(10,397,189)
<u>Deferred Compensation Plan</u>									
	3,843,829	-	-	3,843,829	-	(7,037,872)	(227,181)	(7,265,053)	(3,421,224)
Total All Funds	92,050,128	343,706,000	2,316,466	438,072,594	(165,231,162)	(37,661,133)	(8,419,055)	(211,311,350)	226,761,244
Total Non-Participant Directed	53,092,934	343,706,000	2,316,466	399,115,400	(165,231,162)	(584,701)	(5,215,161)	(171,031,024)	228,084,376
Total Participant Directed	38,957,194	-	-	38,957,194	-	(37,076,432)	(3,203,894)	(40,280,326)	(1,323,132)
Total All Funds	\$ 92,050,128	\$ 343,706,000	\$ 2,316,466	\$ 438,072,594	\$ (165,231,162)	\$ (37,661,133)	\$ (8,419,055)	\$ (211,311,350)	\$ 226,761,244

(a) Employer only contributions.

ALASKA RETIREMENT MANAGEMENT BOARD
SCHEDULE OF NON-INVESTMENT CHANGES BY FUND
(Supplement to the Treasury Division Report)
For the One Months Ending July 31, 2020

PARTICIPANT DIRECTED DISBURSEMENTS BY PLAN AND TYPE

Type	PERS DCR Plan	TRS DCR Plan	Supplemental Annuity Plan	Deferred Compensation	TOTAL	% of Total
Payment to Beneficiary	\$ 8,908	\$ -	\$ 28,538	\$ 3,646	\$ 41,092	0.1%
Death Benefit	209,260	15,661	410,006	393,398	1,028,325	2.8%
Disability / Hardship	-	-	315	28,152	28,467	0.1%
Minimum Required Distribution	2,917	1,679	625,673	161,535	791,804	2.1%
Qualified Domestic Relations Order	145,334	-	106,979	111,457	363,770	1.0%
Separation from Service / Retirement	4,782,526	1,679,936	14,047,213	5,183,468	25,693,143	69.2%
Purchase of Service Credit	-	-	16,731	41,772	58,503	0.2%
Transfer to a Qualifying Plan	-	-	-	-	-	0.0%
CARES Act Distributions	-	-	7,956,884	1,114,444	9,071,328	24.5%
TOTAL	<u>\$ 5,148,945</u>	<u>\$ 1,697,276</u>	<u>\$ 23,192,339</u>	<u>\$ 7,037,872</u>	<u>\$ 37,076,432</u>	<u>100.0%</u>

PERS & TRS PARTICIPANT DIRECTED DISBURSEMENTS BY PLAN AND VESTED PERCENTAGE

Vesting	PERS DCR Plan	TRS DCR Plan	TOTAL	% of Total
100% Vested	\$ 4,547,270	\$ 1,372,906	\$ 5,920,176	86.5%
75% Vested	124,534	81,370	205,904	3.0%
50% Vested	109,124	67,279	176,403	2.6%
25% Vested	140,365	99,322	239,687	3.5%
0% Vested	227,652	76,399	304,051	4.4%
TOTAL	<u>\$ 5,148,945</u>	<u>\$ 1,697,276</u>	<u>\$ 6,846,221</u>	<u>100.0%</u>

DEFINED BENEFIT REFUNDS BY PLAN, TIER, CONTRIBUTION TYPE AND VESTED STATUS

Contribution Type	PERS DB Pension Plan				TRS DB Pension Plan			JRS	TOTAL
	Tier 1	Tier 2	Tier 3	Total	Tier 1	Tier 2	Total	DB Pension Plan	DB Pension Plan
Mandatory Vested	\$ -	\$ -	\$ 25,189	\$ 25,189	\$ -	\$ -	\$ -	\$ -	\$ 25,189.00
Mandatory Non-Vested	41,314	5,311	43,923	90,548	-	27,745	27,745	-	118,293
Geographic Differential	-	22,939	22,527	45,466	-	-	-	-	45,466
Voluntary Full	-	190,752	183,625	374,377	-	-	-	-	374,377
Indebtedness, Lagging & Partial	-	15,042	5,400	20,442	-	934	934	-	21,376
TOTAL	<u>\$ 41,314</u>	<u>\$ 234,044</u>	<u>\$ 280,664</u>	<u>\$ 556,022</u>	<u>\$ -</u>	<u>\$ 28,679</u>	<u>\$ 28,679</u>	<u>\$ -</u>	<u>\$ 584,701</u>

Notes for the DRB Supplement to the Treasury Report

July 2020

This report is the DRB supplement to the Treasury Division's Financial Report. It expands their "Net Contributions/(Withdrawals)" column into contributions and expenditures. It shows contributions received from both employees and employers, contributions from the State of Alaska, and other non-investment income. It also expands expenditures into benefits, refunds & disbursements, and administrative & investment expenditures. The net amount of total contributions and total expenditures, presented as "Net Contributions/(Withdrawals)", agrees with the same column in the Treasury Division's Report. Page one shows the year-to-date totals for the first one month of Fiscal Year 2021, while page two shows only the month of July 2020.

Highlights – On page one, for the **one month** ending July 31, 2020:

- PERS DB Pension – Average employer and employee contributions of \$28.3 million per month; benefit payments of approximately \$76.3 million per month; refunds average \$556 thousand; and Administrative and Investment expenditures of \$505 thousand per month (DOR and DRB).
- PERS DB Healthcare – Average employer contributions of \$7.5 million per month; other income of \$1.3 million from EGWP Subsidies for June 2020; and \$417 thousand from CMS Drug Subsidy for CY2014; benefit payments of approximately \$34.7 million per month; and average Administrative and Investment expenditures of \$3.9 million per month (DOR and DRB).
- PERS DC Pension – Average employer and employee contributions of \$14.4 million per month; participant disbursements average \$5.1 million per month; and average Administrative and Investment expenditures of \$1.7 million per month (DOR and DRB).
- PERS DCR Health – For HRA, RMP, and OD&D, only employer contributions average \$5.3 million per month on behalf of participating employees; benefit payments of approximately \$81 thousand per month. Currently, 69 benefits are being paid from the Occupational Death & Disability plans, 45 retirees are participating in RMP, and 72 retirees are participating in HRA. Administrative and investment expenditures were approximately \$24 thousand per month (DOR and DRB).
- TRS DB Pension - Average employer and employee contributions of \$7.5 million per month; benefit payments of approximately \$41.4 million per month; refunds average \$29 thousand; and average Administrative and Investment expenditures of \$273 thousand per month (DOR and DRB).
- TRS DB Healthcare – Average employer contributions of \$2.1 million per month; other income of \$459 thousand from EGWP subsidies for June 2020; benefit payments of approximately \$11.2 million per month; and average Administrative and Investment expenditures of \$523 thousand per month (DOR and DRB).
- TRS DC Pension – Average employer and employee contributions of \$7.1 million per month; participant disbursements average \$1.7 million per month; and average Administrative and investment expenditures of \$493 thousand per month (DOR and DRB).

- TRS DCR Health – For HRA, RMP, and OD&D, only employer contributions average \$1.9 million per month on behalf of participating employees; benefit payments of approximately \$7 thousand per month. Currently, 19 benefits are being paid from the Occupational Death & Disability plans, 17 retirees are participating in RMP, and 19 retirees are participating in HRA. Administrative and investment expenditures were approximately \$7 thousand per month (DOR and DRB).
- JRS Pension – Average employer and employee contributions of \$434 thousand per month; benefit payments of approximately \$1.2 million per month; and average Administrative and Investment expenditures of \$8 thousand per month (DOR and DRB).
- JRS Healthcare – Average employer contributions of \$45 thousand per month; other income of \$4 thousand from EGWP subsidies for June 2020; benefit payments of approximately \$109 thousand per month; and average Administrative and Investment expenditures of \$4 thousand per month (DOR and DRB).
- NGNMRS – Combination of lump-sum and monthly benefit payments of \$144 thousand per month; and average Administrative and Investment expenditures of \$6 thousand per month (DOR and DRB).
- SBS – Average employer and employee contributions and transfers in of \$13.5 million per month. Participant disbursements average of \$23.2 million per month; and average Administrative and Investment expenditures of \$749 thousand per month (DOR and DRB).
- Deferred Compensation – Average member-only contributions and transfers in of \$3.8 million per month; participant disbursements average of \$7 million per month; and average Administrative and Investment expenditures of \$227 thousand per month (DOR and DRB).

Highlights – On page two, activity for the one month of July 2020 only:

- PERS DB Pension - State of Alaska additional contributions of \$203.5 million.
- PERS DB Healthcare - Other Income of \$1.3 million from EGWP subsidies and \$417 thousand from Aetna rebates.
- TRS DB Pension - State of Alaska additional contributions of \$134.9 million.
- TRS DB Healthcare - Other Income of \$459 thousand from EGWP subsidies.
- JRS Healthcare - Other Income of \$4 thousand from EGWP subsidies.
- All other funds - Nothing significant to report.

If you have any questions or comments, please let me know.

REPORT ON ALASKA RETIREE HEALTH PLAN ADVISORY BOARD MEETING SEPTEMBER 3, 2020 COVID-19 Response

The Division has extended telemedicine coverage until the end of the emergency declaration, consistent with Medicare and many other payers. Telemedicine was already anticipated to be a significant new way to receive and provide care, and COVID-19 has made it more of a necessity.

As a result of the COVID-19 pandemic, the Division will not participate in health fairs this year, because of concerns about risk of exposure at a large in-person event. Flu shots will be 100% covered under AlaskaCare, provided they are administered at a pharmacy and not a doctor's office. The Division is also making plans regarding distribution and coverage of the COVID-19 vaccine when it is available.

EGWP and IRMAA Update

The Division adopted the Employer Group Waiver Plan (EGWP) for pharmacy benefits in 2019. However, the Division also covers IRMAA surcharges for high-income retirees, but cannot pay it directly like other charges. Therefore, the Division instituted a health reimbursement account to reimburse retirees in an amount equal to the surcharge, provided retirees submit the required paperwork demonstrating they are subject to this surcharge.

Beginning in 2021, the Division has partnered with OptumRx to provide this service and automate it to the extent possible.

Update on Potential Benefit Changes

Anticipated New Option:

Staff are researching options for retirees to access a second opinion for a complex diagnosis, or potentially serious surgery.

Medicare Advantage Option

Staff are in process of drafting a Request for Information (RFI) requesting responses from potential vendors who could offer a Medicare Advantage Plan. This information will provide a clearer basis for future decisions regarding potential implementation of Medicare Advantage plans for retirees as a way to expand access to providers. Silver Sneakers program could also be met by a Medicare Advantage plan.

Dental, Vision and Audio (DVA) Plan

The Division offered a choice of two dental plans as part of the overall DVA plan, implemented for the 2020 plan year. Open enrollment will be opening again soon this year, for retirees to choose a Standard or Legacy dental plan. Changes to regulations are necessary to reflect the offering of two plans.

Changes include:

- Retirees who are dual-covered by multiple AlaskaCare retirement plans, must choose the same plan (Legacy or Standard) under all of their coverage. The member can still select different tiers under the plan (for example, higher coverage under one plan than the other) but must be within one of the two plan options.

- Clarifies the definition of “family structure change” to not only include a “first” child but also adoption or birth of any child.

Open Enrollment Period

DVA Open Enrollment begins Tuesday, October 20 and closes Wednesday, November 25, 2020. Open enrollment will be passive: if retirees take no action, they will remain enrolled in the same plan as this year (or, not enrolled if they are not currently).

Retirees will receive a mailing in advance of open enrollment sharing their options; can attend a dedicated Tele Town Hall about enrollment; and will receive a series of reminder e-mails, e-newsletter articles, and postcard. Staff will also be available to assist retirees via phone.

Premium Rates for Plan Year 2021

RHPAB accepted the Division’s recommendations regarding 2021 rates for the medical, DVA and LTC plans:

- 5% premium reduction for members who pay premiums for the medical plan
- no change from 2020 to DVA plan rates, with potential future change in 2022
- no change to LTC plan rates.



August 20, 2020

Mr. Ajay Desai
Director
Alaska Department of Administration
Division of Retirement & Benefits
PO Box 110203
Juneau, AK 99811-0203

Dear Ajay,

As requested, we have calculated the allocation between the pension and healthcare funds of the FY22 Additional State Contributions for the State of Alaska Public Employees' Retirement System (PERS), Teachers' Retirement System (TRS), and Judicial Retirement System (JRS).

All results are based on the June 30, 2019 valuation reports, except the results for PERS and TRS reflect FY20 asset performance as shown in the preliminary June 30, 2020 asset statements that were provided to us on August 10.

Summary of Results

For PERS and TRS, the FY22 Additional State Contributions are allocated 100% to pension, since the healthcare funds are projected to be more than 100% funded at June 30, 2021. In addition, we assumed the FY21 Additional State Contributions were made 100% to pension based on prior discussions at Actuarial Committee meetings.

The figures in the attached exhibit for PERS and TRS were determined as follows:

- Liabilities from June 30, 2019 were rolled forward 2 years based on the June 30, 2019 valuation projections. Actual FY20 benefit payments (pension only) from the preliminary June 30, 2020 asset statements were used for this roll-forward.
- Assets from June 30, 2019 were rolled forward 1 year using actual FY20 investment return, contributions, subsidies, benefit payments, and administrative expenses based on the preliminary June 30, 2020 asset statements, and then rolled forward another year based on the expected investment return and cash flows from the June 30, 2019 valuation projections.
- The Unfunded Actuarial Accrued Liability is amortized under the layered approach recently adopted by the Alaska Retirement Management Board.
- Investment gains and losses are recognized over 5 years beginning June 30, 2014.
- All contribution rates are based on total payroll of Defined Benefit (DB) and Defined Contribution Retirement (DCR) combined.

For JRS, the allocation of the FY22 past service cost rate between pension and healthcare is shown below. The FY22 past service cost rate is based on the June 30, 2019 valuation, but not less than zero.

JRS			
	FY22 Projected Pay	FY22 Past Service Cost Rate	FY22 Past Service Contribution Amount
Pension	\$ 13,393,000	31.25%	\$ 4,185,000
Healthcare	\$ 13,393,000	<u>0.00%</u>	\$ <u>0</u>
Total		31.25%	\$ 4,185,000

Data, Provisions, Assumptions, and Methods

The data, plan provisions, actuarial assumptions, and methods used for the PERS, TRS, and JRS plan costs are described in the June 30, 2019 actuarial valuation reports. Preliminary June 30, 2020 asset statements for PERS and TRS were reflected as noted above.

Please call me at 602-803-6174 if you have any questions.

Sincerely,



David J. Kershner, FSA, EA, MAAA, FCA
Principal
Buck

Attachment

cc: Mr. Kevin Worley, State of Alaska
Mr. Jim Puckett, State of Alaska



State of Alaska

Allocation of Projected FY22 Employer and Additional State Contributions

**Based on June 30, 2019 Valuations
with Liabilities Rolled Forward 2 Years and
Assets Rolled Forward 1 Year and Smoothed**

	PERS		TRS	
Projected FY22 DB Payroll	\$	842,859,000	\$	308,732,000
Projected FY22 DCR Payroll		<u>1,543,010,000</u>		<u>430,849,000</u>
Projected FY22 Total Payroll	\$	2,385,869,000	\$	739,581,000
	Percent of Total Payroll	Estimated Dollar Amount	Percent of Total Payroll	Estimated Dollar Amount
Employer Contributions				
DB Pension Plan	12.78%	\$ 304,914,000	3.22%	\$ 23,815,000
<i>Employer Normal Cost</i>	2.58%	\$ 61,555,000	2.40%	\$ 17,750,000
<i>Past Service Cost Payment</i>	10.20%	\$ 243,359,000	0.82%	\$ 6,065,000
DB Healthcare Plan	3.12%	\$ 74,439,000	2.98%	\$ 22,040,000
<i>Employer Normal Cost</i>	3.12%	\$ 74,439,000	2.98%	\$ 22,040,000
<i>Past Service Cost Payment</i>	0.00%	\$ 0	0.00%	\$ 0
DCR Plan	<u>6.10%</u>	<u>\$ 145,538,000</u>	<u>6.36%</u>	<u>\$ 47,037,000</u>
Total	22.00%	\$ 524,891,000	12.56%	\$ 92,892,000
Additional State Contributions to DB				
DB Pension Plan	8.11%	\$ 193,494,000	19.29%	\$ 142,665,000
DB Healthcare Plan	<u>0.00%</u>	<u>0</u>	<u>0.00%</u>	<u>0</u>
Total	8.11%	\$ 193,494,000	19.29%	\$ 142,665,000
Total DB				
DB Pension Plan	20.89%	\$ 498,408,000	22.51%	\$ 166,480,000
DB Healthcare Plan	<u>3.12%</u>	<u>74,439,000</u>	<u>2.98%</u>	<u>22,040,000</u>
Total	24.01%	\$ 572,847,000	25.49%	\$ 188,520,000
Total DB and DCR	30.11%	\$ 718,385,000	31.85%	\$ 235,557,000

Notes:

- Projected FY22 payroll is based on the June 30, 2019 valuation projections assuming 0% population growth.
- Additional State Contributions for FY21 are assumed to be made 100% to pension.
- All contribution rates are expressed as a percentage of total payroll of DB and DCR combined.
- FY20 investment return, contributions, subsidies, benefit payments, and administrative expenses are based on preliminary June 30, 2020 asset statements provided by the State. FY21 investment return, contributions, subsidies, benefit payments, and administrative expenses are based on the June 30, 2019 valuation projections assuming 0% population growth. Investment gains and losses are recognized over 5 years beginning June 30, 2014.
- Total contribution rates for pension and healthcare are not less than the Normal Cost rates.
- Data, plan provisions, assumptions, and methods are as described in the June 30, 2019 actuarial valuation reports, except as noted above.

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT: History of PERS / TRS Employer
Contribution Rates
 DATE: September 17, 2020

ACTION: _____
 INFORMATION: X

Below is a history of employer contribution rates adopted by the Alaska Retirement Management Board for Fiscal Years 2013 through 2021, as well as the proposed FY 2022 contribution rates.

ARM BOARD ADOPTED RATES												
		FY13	FY14 (a)	FY15 (a)	FY15 (b)	FY16	FY17	FY18	FY19 (c)	FY20	FY21	PROPOSED FY22
Public Employees' Retirement System (PERS)												
	DB/DCR Employer Contribution Rate	35.84%	35.68%	44.03%	31.90%	27.19%	26.14%	25.01%	27.58%	28.62%	30.85%	30.11%
	DCR - Retiree Medical Plan	0.48%	0.48%	1.66%	1.66%	1.68%	1.18%	1.03%	0.94%	1.32%	1.27%	1.07%
	DCR - OD&D - All Others	0.14%	0.20%	0.22%	0.22%	0.22%	0.17%	0.16%	0.26%	0.26%	0.31%	0.31%
	DCR - OD&D - P/F	0.99%	1.14%	1.06%	1.06%	1.05%	0.49%	0.43%	0.76%	0.72%	0.70%	0.68%
Teachers' Retirement System (TRS)												
	DB/DCR Employer Contribution Rate	52.67%	53.62%	70.75%	48.69%	29.27%	28.02%	26.78%	28.90%	30.47%	30.47%	31.85%
	DCR - Retiree Medical Plan	0.49%	0.47%	2.04%	2.04%	2.04%	1.05%	0.91%	0.79%	1.09%	0.93%	0.83%
	DCR - OD&D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.08%	0.08%	0.08%	0.08%

- (a) As noted in the June 30, 2012 actuarial valuation reports, "The Board changed the amortization method used for funding from the level percentage of payroll method to the level dollar method in June 2012, effective June 30, 2012."
- (b) During the FY 2014 legislative session, HB 385 enacted certain changes into law. In AS 37.10.220(a), item (a)(8)(B) was amended to define that "an appropriate contribution rate for liquidating the past service liability of the defined benefit retirement plan under AS 14.25.009 - 14.25.220 or the past service liability of the defined benefit retirement plan under AS 39.35.095 - 39.35.680 must be determined by a level percent of pay method based on amortization of the past service liability for a closed term of 25 years;"
 The PERS DB and TRS DB Employer Contribution Rates for FY 2015 were updated to the level percentage of pay methodology from the previously determined rates that were prepared using the level dollar methodology, and have been done so going forward.
- (c) Beginning in Fiscal Year 2019, employer contribution rates for plans which have no past service liability as determined by the actuarial valuation process will not reflect a contribution rate for liquidating past service liability under AS 37.10.220(a)(8)(B).

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT: FY 22 PERS Employer Contribution Rate
Tier I - III
DATE: September 17, 2020

ACTION: X
INFORMATION:

BACKGROUND:

AS 37.10.220(a)(8) sets forth the responsibility of the Alaska Retirement Management Board (Board) to annually certify to each employer in the system contribution rates for normal costs and for liquidating any past service liability:

(8) coordinate with the retirement system administrator to have an annual actuarial valuation of each retirement system prepared to determine system assets, accrued liabilities, and funding ratios and to certify to the appropriate budgetary authority of each employer in the system

(A) an appropriate contribution rate for normal costs; and

(B) an appropriate contribution rate for liquidating any past service liability; in this subparagraph, the appropriate contribution rate for liquidating the past service liability of the defined benefit retirement plan under AS 14.25.009 - 14.25.220 or the past service liability of the defined benefit retirement plan under AS 39.35.095 - 39.35.680 must be determined by a level percent of pay method based on amortization of the past service liability for a closed term of 25 years;

AS 39.35.270 requires that the amount of each Public Employees' Retirement System (PERS) employer's contribution to the system shall be determined by applying the employer's contribution rate, as certified by the Board, to the total compensation paid to the active employee. Statutory employer contribution and additional state contribution are established under the following two sections of Alaska Statute:

Sec. 39.35.255. Contributions by employers. (a) Each employer shall contribute to the system every payroll period an amount calculated by applying a rate of 22 percent of the greater of the total of all base salaries

(1) paid by the employer to employees who are active members of the system, including any adjustments to contributions required by AS 39.35.520; or

(2) paid by the employer to employees who were active members of the system during the corresponding payroll period for the fiscal year ending June 30, 2008."

and:

Sec. 39.35.280. Additional state contributions. In addition to the contributions that the state is required to make under AS 39.35.255 as an employer, the state shall contribute to the plan each July 1 or, if funds are not available on July 1, as soon after July 1 as funds become available, an amount for the ensuing fiscal year that, when combined with the total employer contributions that the administrator estimates will be allocated under AS 39.35.255(c), is sufficient to pay the plan's past service liability at the contribution rate adopted by the board under AS 37.10.220 for that fiscal year.

STATUS:

The Division of Retirement & Benefits' actuary, Buck, has completed the "Allocation of Projected FY 22 Employer and Additional State Contributions" as shown in their letter dated August 20, 2020 based on the June 30, 2019 valuation report. The PERS June 30, 2019 valuation report has been reviewed by the Board's actuary, Gabriel, Roeder, Smith & Co. (GRS)

The Actuarial Committee met September 16, 2020, and passed a motion recommending that the Board adopt Resolution 2020-07.

RECOMMENDATION:

That the Alaska Retirement Management Board set the Fiscal Year 2022 PERS actuarially determined contribution rate attributable to employers consistent with its fiduciary duty, as set out in the attached form of Resolution 2020-07.

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
Relating to the Fiscal Year 2022 Employer Contribution Rate
For the Public Employees' Retirement System

Resolution 2020-07

WHEREAS, the Alaska Retirement Management Board (Board) was established by law to serve as trustee to the assets of the State's retirement systems; and

WHEREAS, under AS 37.10.210-220, the Board is to establish and determine the investment objectives and policy for each of the funds entrusted to it; and

WHEREAS, AS 37.10.071 and AS 37.10.210-220 require the Board to apply the prudent investor rule and exercise the fiduciary duty in the sole financial best interest of the funds entrusted to it and treat beneficiaries thereof with impartiality; and

WHEREAS, AS 37.10.220(a)(8) requires the Board to coordinate with the retirement system administrator to conduct an annual actuarial valuation of each retirement system to determine system assets, accrued liabilities and funding ratios, and to certify to the appropriate budgetary authority of each employer in the system an appropriate contribution rate for normal costs and an appropriate contribution rate for liquidating any past service liability determined by a level percent of pay method based on amortization of the past service liability for a closed term of 25 years; and

WHEREAS, AS 39.35.255 establishes a statutory employer contribution rate of 22.00 percent and AS 39.35.280 requires additional state contribution to make up the difference between 22.00 percent and the actuarially determined contribution rate; and

WHEREAS, the Buck letter dated August 20, 2020 determines that the actuarially determined contribution rate for pension benefits is 20.89 percent composed of the normal cost rate of 2.58 percent and past service rate of 18.31 percent; and

WHEREAS, the Buck letter dated August 20, 2020 determines that the actuarially determined contribution rate for postemployment healthcare benefits is 3.12 percent composed of the normal cost rate of 3.12 percent and past service rate of 0.00 percent; and

WHEREAS, the Buck letter dated August 20, 2020 presents the employer rate incorporating the total cost of the Defined Contribution Retirement Plan of 6.10 percent;

NOW THEREFORE, BE IT RESOLVED BY THE ALASKA RETIREMENT MANAGEMENT BOARD, that the Fiscal Year 2022 actuarially determined contribution rate attributable to employers participating in the Public Employees' Retirement System is set at 30.11 percent, composed of the contribution rate for defined benefit pension of 20.89 percent, the contribution rate for postemployment healthcare of 3.12 percent, and the contribution rate for defined contribution pension of 6.10 percent.

DATED at Juneau, Alaska this 17th day of September, 2020.

Chair

ATTEST:

Secretary

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT: FY 22 PERS Retiree Major Medical
and Occupational Death & Disability

ACTION: X

DATE: September 17, 2020

INFORMATION: _____

BACKGROUND:

The Alaska Retirement Management Board (Board) establishes rates for the Public Employees' Retirement System (PERS) Defined Contribution Retirement Plan for the following plans: 1) Retiree Major Medical Insurance and 2) Occupational Death & Disability under the following two sections in Alaska Statute:

Retiree Major Medical Insurance

AS 39.35.750 (b) requires that "An employer shall also contribute an amount equal to a percentage, as adopted by the board, of each member's compensation from July 1 to the following June 30 to pay for retiree major medical insurance."

Occupational Death & Disability

AS 39.35.750 (e) requires that "An employer shall make annual contributions to the plan in an amount determined by the board to be actuarially required to fully fund the cost of providing occupational disability and occupational death benefits under AS 39.35.890 and 39.35.892. The contribution required under this subsection for peace officers and fire fighters and the contribution required under this subsection for other employees shall be separately calculated based on the actuarially calculated costs for each group of employees."

STATUS:

The Division of Retirement & Benefits' actuary, Buck, has completed the actuarial valuation of the PERS DCR Plan as of June 30, 2019. The valuation has been reviewed by the Board's actuary, Gabriel, Roeder, Smith & Co. (GRS).

According to the PERS Defined Contribution Retirement Plan actuarial valuation report, and confirmed by GRS, the Fiscal Year 2022 actuarially determined contribution rates attributable to employers for the Retiree Major Medical Insurance should be 1.07 percent; for the peace officer/firefighter Occupational Death & Disability benefit should be 0.68 percent; and for "all other" Occupational Death & Disability benefit should be 0.31 percent.

The Actuarial Committee met September 16, 2020, and passed a motion recommending that the Board adopt Resolutions 2020-08 and 2020-09

RECOMMENDATION:

That the Alaska Retirement Management Board set Fiscal Year 2022 PERS Defined Contribution Retirement Retiree Major Medical Insurance and Occupational Death & Disability Benefit rates as set out in the following resolutions:

1. Resolution 2020-08: Public Employees' Defined Contribution Retirement Plan Retiree Major Medical Insurance Rate
2. Resolution 2020-09: Public Employees' Defined Contribution Retirement Plan Occupational Death & Disability Benefit Rates

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
Relating to the Fiscal Year 2022 Employer Contribution Rate
For Public Employees' Defined Contribution Retirement Plan
Retiree Major Medical Insurance Rate

Resolution 2020-08

WHEREAS, the Alaska Retirement Management Board (Board) was established by law to serve as trustee to the assets of the State's retirement systems; and

WHEREAS, under AS 37.10.210-220, the Board is to establish and determine the investment objectives and policy for each of the funds entrusted to it; and

WHEREAS, AS 37.10.071 and AS 37.10.210-220 require the Board to apply the prudent investor rule and exercise the fiduciary duty in the sole financial best interest of the funds entrusted to it and treat beneficiaries thereof with impartiality; and

WHEREAS, AS 37.10.220 requires the Board to coordinate with the retirement system administrator to conduct an annual actuarial valuation of each retirement system to determine system assets, accrued liabilities and funding ratios; and

WHEREAS, AS 39.35.750(b) requires the Board to approve an amount equal to a percentage of each member's compensation from July 1 to the following June 30 to pay for retiree major medical insurance; and

WHEREAS, the June 30, 2019 PERS Defined Contribution actuarial valuation report determines that the actuarially determined contribution rate for retiree major medical insurance is 1.07 percent, composed of the normal cost rate of 1.02 percent and past service rate of 0.05 percent;

NOW THEREFORE, BE IT RESOLVED BY THE ALASKA RETIREMENT MANAGEMENT BOARD, the Fiscal Year 2022 employer contribution rate for the retiree major medical insurance for the Public Employees' Defined Contribution Retirement Plan is set at 1.07 percent.

DATED at Anchorage, Alaska this 17th day of September, 2020.

Chair

ATTEST:

Secretary

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
Relating to the Fiscal Year 2022 Employer Contribution Rate
For Public Employees' Defined Contribution Retirement Plan
Occupational Death & Disability Benefit Rates

Resolution 2020-09

WHEREAS, the Alaska Retirement Management Board (Board) was established by law to serve as trustee to the assets of the State's retirement systems; and

WHEREAS, under AS 37.10.210-220, the Board is to establish and determine the investment objectives and policy for each of the funds entrusted to it; and

WHEREAS, AS 37.10.071 and AS 37.10.210-220 require the Board to apply the prudent investor rule and exercise the fiduciary duty in the sole financial best interest of the funds entrusted to it and treat beneficiaries thereof with impartiality; and

WHEREAS, AS 37.10.220 requires the Board to coordinate with the retirement system administrator to conduct an annual actuarial valuation of each retirement system to determine system assets, accrued liabilities and funding ratios; and

WHEREAS, AS 39.35.750(e) requires the Board to determine an actuarially sound amount required to fully fund the cost of providing occupational disability and occupational death benefits under AS 39.35.890 and 39.35.892, and that such contribution for peace officers and fire fighters, and the contribution for other employees shall be calculated separately; and

WHEREAS, the June 30, 2019 PERS Defined Contribution actuarial valuation report determines that the actuarially determined contribution rate for peace officer / firefighter occupational death & disability is 0.68 percent, which is the normal cost rate, and the actuarially determined contribution rate for "all other" is 0.31 percent, which is the normal cost rate; and

WHEREAS, there is no past service liability as determined by the annual actuarial valuation of the PERS Defined Contribution occupational death & disability, so no contribution rate for liquidating past service liability is appropriate under AS 37.10.220(a)(8)(B);

NOW THEREFORE, BE IT RESOLVED BY THE ALASKA RETIREMENT MANAGEMENT BOARD, the Fiscal Year 2022 employer contribution rate for public employees' occupational death and disability benefit rate is set at 0.68 percent for peace officers / fire fighters, and at 0.31 percent for all other Public Employees' Defined Contribution Retirement Plan employees.

DATED at Anchorage, Alaska this 17th day of September, 2020.

Chair

ATTEST:

Secretary

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT: FY 22 TRS Employer Contribution Rate
Tier I - II
DATE: September 17, 2020

ACTION: X
INFORMATION:

BACKGROUND:

AS 37.10.220(a)(8) sets forth the responsibility of the Alaska Retirement Management Board (Board) to annually certify to each employer in the system contribution rates for normal costs and for liquidating any past service liability:

(8) coordinate with the retirement system administrator to have an annual actuarial valuation of each retirement system prepared to determine system assets, accrued liabilities, and funding ratios and to certify to the appropriate budgetary authority of each employer in the system

(A) an appropriate contribution rate for normal costs; and

(B) an appropriate contribution rate for liquidating any past service liability; in this subparagraph, the appropriate contribution rate for liquidating the past service liability of the defined benefit retirement plan under AS 14.25.009 - 14.25.220 or the past service liability of the defined benefit retirement plan under AS 39.35.095 - 39.35.680 must be determined by a level percent of pay method based on amortization of the past service liability for a closed term of 25 years;

AS 14.25.070 requires that the amount of each Teachers' Retirement System (TRS) employer's contribution to the system shall be determined by applying the employer's contribution rate, as certified by the Board, to the total compensation paid to the active employee. Statutory employer contribution and additional state contribution are established under the following two sections of Alaska Statute:

Sec. 14.25.070. Contributions by employers. (a) Each employer shall contribute to the system every payroll period an amount calculated by applying a rate of 12.56 percent to the total of all base salaries paid by the employer to active members of the system, including any adjustments to contributions required by AS 14.25.173(a).

and:

Sec. 14.25.085. Additional state contributions. In addition to the contributions that the state is required to make under AS 14.25.070 as an employer, the state shall contribute to the plan each July 1 or, if funds are not available on July 1, as soon after July 1 as funds become available, an amount for the ensuing fiscal year that, when combined with the total employer contributions that the administrator estimates will be allocated under AS 14.25.070(c), is sufficient to pay the plan's past service liability at the contribution rate adopted by the board under AS 37.10.220 for that fiscal year.

STATUS:

The Division of Retirement & Benefits' actuary, Buck, has completed the "Allocation of Projected FY 22 Employer and Additional State Contributions" as shown in their letter dated August 20, 2020 based on the June 30, 2019 valuation report. The TRS June 30, 2019 valuation report has been reviewed by the Board's actuary, Gabriel, Roeder, Smith & Co. (GRS)

The Actuarial Committee met September 16, 2020, and passed a motion recommending that the Board adopt Resolution 2020-10.

RECOMMENDATION:

That the Alaska Retirement Management Board set the Fiscal Year 2022 TRS actuarially determined contribution rate attributable to employers consistent with its fiduciary duty, as set out in the attached form of Resolution 2020-10.

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
Relating to the Fiscal Year 2022 Employer Contribution Rate
For the Teachers' Retirement System

Resolution 2020-10

WHEREAS, the Alaska Retirement Management Board (Board) was established by law to serve as trustee to the assets of the State's retirement systems; and

WHEREAS, under AS 37.10.210-220, the Board is to establish and determine the investment objectives and policy for each of the funds entrusted to it; and

WHEREAS, AS 37.10.071 and AS 37.10.210-220 require the Board to apply the prudent investor rule and exercise the fiduciary duty in the sole financial best interest of the funds entrusted to it and treat beneficiaries thereof with impartiality; and

WHEREAS, AS 37.10.220(a)(8) requires the Board to coordinate with the retirement system administrator to conduct an annual actuarial valuation of each retirement system to determine system assets, accrued liabilities and funding ratios, and to certify to the appropriate budgetary authority of each employer in the system an appropriate contribution rate for normal costs and an appropriate contribution rate for liquidating any past service liability determined by a level percent of pay method based on amortization of the past service liability for a closed term of 25 years; and

WHEREAS, AS 14.25.070 establishes a statutory employer contribution rate of 12.56 percent and AS 14.25.085 requires additional state contribution to make up the difference between 12.56 percent and the actuarially determined contribution rate; and

WHEREAS, the Buck letter dated August 20, 2020 determines that the actuarially determined contribution rate for pension benefits is 22.51 percent composed of the normal cost rate of 2.40 percent and past service rate of 20.11 percent; and

WHEREAS, the Buck letter dated August 20, 2020 determines that the actuarially determined contribution rate for postemployment healthcare benefits is 2.98 percent composed of the normal cost rate of 2.98 percent and past service rate of 0.00 percent; and

WHEREAS, the Buck letter dated August 20, 2020 presents the employer rate incorporating the total cost of the Defined Contribution Retirement Plan of 6.36 percent;

NOW THEREFORE, BE IT RESOLVED BY THE ALASKA RETIREMENT MANAGEMENT BOARD, that the Fiscal Year 2022 actuarially determined contribution rate attributable to employers participating in the Teachers' Retirement System is set at 31.85 percent, composed of the contribution rate for defined benefit pension of 22.51 percent, the contribution rate for postemployment healthcare of 2.98 percent, and the contribution rate for defined contribution pension of 6.36 percent.

DATED at Juneau, Alaska this 17th day of September, 2020.

Chair

ATTEST:

Secretary

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT: FY 22 TRS Retiree Major Medical ACTION: X
and Occupational Death & Disability

DATE: September 17, 2020 INFORMATION: _____

BACKGROUND:

The Alaska Retirement Management Board (Board) establishes rates for the Teachers' Retirement System (TRS) Defined Contribution Retirement Plans for the following plans: 1) Retiree Major Medical Insurance and 2) Occupational Death & Disability under the following two sections in Alaska Statute:

Retiree Major Medical Insurance

AS 14.25.350 (b) requires that "An employer shall also contribute an amount equal to a percentage, as approved by the board, of each member's compensation from July 1 to the following June 30 to pay for retiree major medical insurance."

Occupational Death & Disability

AS 14.25.350 (e) requires that "An employer shall make annual contributions to a trust account in the plan, applied as a percentage of each member's compensation from July 1 to the following June 30, in an amount determined by the board to be actuarially required to fully fund the cost of providing occupational disability and occupational death benefits under AS 14.25.310 - 14.25.590."

STATUS:

The Division of Retirement & Benefits' actuary, Buck, has completed the actuarial valuation of the TRS DCR Plan as of June 30, 2019. The valuation has been reviewed by the Board's actuary, Gabriel, Roeder, Smith & Co. (GRS).

According to the TRS DCR Plan actuarial valuation report, and confirmed by GRS, the Fiscal Year 2022 actuarially determined contribution rate attributable to employers for the Retiree Major Medical Insurance should be 0.83 percent and for the Occupational Death & Disability Benefit should be 0.08 percent.

The Actuarial Committee met September 16, 2020, and passed a motion recommending that the Board adopt Resolutions 2020-11 and 2020-12.

RECOMMENDATION:

That the Alaska Retirement Management Board set Fiscal Year 2022 TRS Defined Contribution Retirement Plan Retiree Major Medical Insurance and Occupational Death & Disability Benefit rates as set out in the following resolutions:

1. Resolution 2020-11: Teachers' Defined Contribution Retirement Plan Retiree Major Medical Insurance Rate
2. Resolution 2020-12: Teachers' Defined Contribution Retirement Plan Occupational Death & Disability Benefit Rate

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
Relating to the Fiscal Year 2022 Employer Contribution Rate For
Teachers' Defined Contribution Retirement Plan
Retiree Major Medical Insurance Rate

Resolution 2020-11

WHEREAS, the Alaska Retirement Management Board (Board) was established by law to serve as trustee to the assets of the State's retirement systems; and

WHEREAS, under AS 37.10.210-220, the Board is to establish and determine the investment objectives and policy for each of the funds entrusted to it; and

WHEREAS, AS 37.10.071 and AS 37.10.210-220 require the Board to apply the prudent investor rule and exercise the fiduciary duty in the sole financial best interest of the funds entrusted to it and treat beneficiaries thereof with impartiality; and

WHEREAS, AS 37.10.220 requires the Board to coordinate with the retirement system administrator to conduct an annual actuarial valuation of each retirement system to determine system assets, accrued liabilities and funding ratios; and

WHEREAS, AS 14.25.350(b) requires the Board to approve an amount equal to a percentage of each member's compensation from July 1 to the following June 30 to pay for retiree major medical insurance; and

WHEREAS, the June 30, 2019 TRS Defined Contribution actuarial valuation report determines that the actuarially determined contribution rate for retiree major medical insurance is 0.83 percent, which is the normal cost rate; and

WHEREAS, there is no past service liability as determined by the annual actuarial valuation of the TRS Defined Contribution retiree major medical insurance, so no contribution rate for liquidating past service liability is appropriate under AS 37.10.220(a)(8)(B);

NOW THEREFORE, BE IT RESOLVED BY THE ALASKA RETIREMENT MANAGEMENT BOARD, the Fiscal Year 2022 employer contribution rate for the retiree major medical insurance for the Teachers' Defined Contribution Retirement Plan is set at 0.83 percent.

DATED at Juneau, Alaska this 17th day of September, 2020.

Chair

ATTEST:

Secretary

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
Relating to the Fiscal Year 2022 Employer Contribution Rate For
Teachers' Defined Contribution Retirement Plan Occupational
Death & Disability Benefit Rate

Resolution 2020-12

WHEREAS, the Alaska Retirement Management Board (Board) was established by law to serve as trustee to the assets of the State's retirement systems; and

WHEREAS, under AS 37.10.210-220, the Board is to establish and determine the investment objectives and policy for each of the funds entrusted to it; and

WHEREAS, AS 37.10.071 and AS 37.10.210-220 require the Board to apply the prudent investor rule and exercise the fiduciary duty in the sole financial best interest of the funds entrusted to it and treat beneficiaries thereof with impartiality; and

WHEREAS, AS 37.10.220 requires the Board to coordinate with the retirement system administrator to conduct an annual actuarial valuation of each retirement system to determine system assets, accrued liabilities and funding ratios; and

WHEREAS, AS 14.25.350 (e) requires the Board to determine an actuarially sound amount required to fully fund the cost of providing occupational disability and occupational death benefits under AS 14.25.310 – 14.25.590; and

WHEREAS, the June 30, 2019 TRS Defined Contribution actuarial valuation report determines that the actuarially determined contribution rate for occupational death & disability is 0.08 percent, which is the normal cost rate; and

WHEREAS, there is no past service liability as determined by the annual actuarial valuation of the TRS Defined Contribution occupational death & disability, so no contribution rate for liquidating past service liability is appropriate under AS 37.10.220(a)(8)(B);

NOW THEREFORE, BE IT RESOLVED BY THE ALASKA RETIREMENT MANAGEMENT BOARD, the Fiscal Year 2022 employer contribution rate for teachers' occupational death and disability benefit rate is set at 0.08 percent for all Teachers' Defined Contribution Retirement Plan employees.

DATED at Juneau, Alaska this 17th day of September, 2020.

Chair

ATTEST:

Secretary

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT: FY 22 Alaska National Guard and
Naval Militia Contribution Amount

ACTION: X

DATE: September 17, 2020

INFORMATION: _____

BACKGROUND:

AS 26.05.226 requires that “(a) The Department of Military and Veterans’ Affairs (DMVA) shall contribute to the Alaska National Guard and Alaska Naval Militia retirement system the amounts determined by the Alaska Retirement Management Board as necessary to (1) fund the system based on the actuarial requirements of the system as established by the Alaska Retirement Management Board; and (2) administer the system. (b) The amount required for contributions from the Department of Military and Veterans' Affairs under (a) of this section shall be included in the annual appropriations made to the Department of Military and Veterans' Affairs.”

STATUS:

The Division of Retirement & Benefits’ (Division’s) actuary, Buck, has completed the roll-forward actuarial valuation of the Alaska National Guard and Naval Militia Retirement System (NGNMRS) as of June 30, 2019. The roll-forward actuarial valuation has been reviewed by the Alaska Retirement Management Board’s (Board’s) actuary, Gabriel, Roeder, Smith & Co. (GRS) and then certified and accepted by the Board.

According to the NGNMRS June 30, 2019 roll-forward actuarial valuation report, and confirmed by GRS, the Fiscal Year 2022 actuarially determined contribution amount should be \$737,551, consisting of the normal cost of \$483,551 and expense load of \$254,000. There is no past service liability, and thus no contribution amount for liquidating past service liability is appropriate under AS 37.10.220(a)(8)(B).

The Actuarial Committee met September 16, 2020, and passed a motion recommending that the Board adopt Resolution 2020-13 setting the FY 2022 NGNMRS contribution amount at \$737,551.

RECOMMENDATION:

That the Alaska Retirement Management Board set the Fiscal Year 2022 NGNMRS annual contribution amount consistent with its fiduciary duty, as set out in the attached form of Resolution 2020-13.

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
Relating to the Fiscal Year 2022 Contribution Amount
For the Alaska National Guard and Naval Militia Retirement System

Resolution 2020-13

WHEREAS, the Alaska Retirement Management Board (Board) was established by law to serve as trustee to the assets of the State's retirement systems; and

WHEREAS, under AS 37.10.210-220, the Board is to establish and determine the investment objectives and policy for each of the funds entrusted to it; and

WHEREAS, AS 37.10.071 and AS 37.10.210-220 require the Board to apply the prudent investor rule and exercise the fiduciary duty in the sole financial best interest of the funds entrusted to it and treat beneficiaries thereof with impartiality; and

WHEREAS, AS 37.10.220(a)(8) requires the Board to coordinate with the retirement system administrator to conduct an annual actuarial valuation of each retirement system to determine system assets, accrued liabilities and funding ratios, and to certify to the appropriate budgetary authority of each employer in the system an appropriate contribution rate for normal costs and an appropriate contribution rate for liquidating any past service liability; and

WHEREAS, the June 30, 2019 Alaska National Guard and Naval Militia Retirement System roll-forward actuarial valuation report determines that the actuarially determined contribution amount is \$737,551, composed of the normal cost of \$483,551, and expense load cost of \$254,000; and

WHEREAS, there is no past service liability as determined by the roll-forward actuarial valuation of the Alaska National Guard and Naval Militia Retirement System, so no contribution amount for liquidating past service liability is appropriate under AS 37.10.220(a)(8)(B);

NOW THEREFORE, BE IT RESOLVED BY THE ALASKA RETIREMENT MANAGEMENT BOARD, that the Fiscal Year 2022 contribution amount for the State of Alaska, Department of Military and Veterans' Affairs to the Alaska National Guard and Naval Militia Retirement System is set at \$737,551.

DATED at Anchorage, Alaska this 17th day of September, 2020.

Chair

ATTEST:

Secretary

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT: FY 22 JRS Employer Contribution
Rate

ACTION: _____

DATE: September 17, 2020

INFORMATION: X

BACKGROUND:

AS 22.25.046 states in part that:

(a) The state court system shall contribute to the judicial retirement system at the rate established by the commissioner of administration. The contribution rate shall be based on the results of an actuarial valuation of the judicial retirement system. The results of the actuarial valuation shall be based on actuarial methods and assumptions adopted by the commissioner of administration.

(b) The contribution rate shall be a percentage which, when applied to the covered compensation of all active members of the judicial retirement system, will generate sufficient money to support, along with contributions from members, the benefits of the judicial retirement system.

(c) Employer contributions shall be separately computed for benefits provided by AS 22.25.090 and shall be deposited in the Alaska retiree health care trust established under AS 39.30.097(a).”

STATUS:

The Division of Retirement & Benefits’ (Division’s) actuary, Buck, has completed the roll-forward actuarial valuation of the Alaska Judicial Retirement System (JRS) as of June 30, 2019. The actuarial valuation has been reviewed by the Alaska Retirement Management Board’s (Board’s) actuary, Gabriel, Roeder, Smith & Co. (GRS) and then certified and accepted by the Board.

According to page 5 of the JRS roll-forward actuarial valuation as of June 30, 2019, the recommended Fiscal Year 2022 employer contribution rate is 77.25 percent based on the following table:

	Pension	Post-employment Health Care	Total
Normal Cost Rate	39.72%	6.28%	46.00%
Past Service Cost Rate	31.25%	-6.64%	31.25%
Total Employer Contribution Rate	70.97%	6.28%	77.25%

The Alaska Legislature has established operating budget language that explicitly addresses JRS past service costs separate from the normal costs. Normal costs as a percentage are charged to the Alaska Court System's operating budget and past service cost in dollars is funded separately in retirement section language like PERS and TRS.

The computed JRS Past Service Contribution amount is \$4,185,000 as shown on page 2 of the Buck letter dated August 13, 2020. The contribution amount should be reflected in the operating budget language section and should be deposited in the JRS pension benefit trust during FY 2022.



February 18, 2020

State of Alaska

The Alaska Retirement Management Board

The Department of Revenue, Treasury Division

The Department of Administration, Division of Retirement and Benefits

P.O. Box 110203

Juneau, AK 99811-0203

**Re: Judicial Retirement System and National Guard and Naval Militia Retirement System
Roll-Forward Actuarial Valuations as of June 30, 2019**

Dear Members of The Alaska Retirement Management Board, The Department of Revenue and The Department of Administration:

We have completed the roll-forward actuarial valuations for the State of Alaska Judicial Retirement System (JRS) and the National Guard and Naval Militia Retirement System (NGNMRS) as of June 30, 2019. The valuations have been performed by a projection or "roll forward" of results from the last valuation date of June 30, 2018 to June 30, 2019. Actual asset values as of June 30, 2019 were reflected. A summary of results and description of assumptions and methods are included in this report.

The purposes of these roll-forward valuations are to (i) determine the employer contributions necessary to meet the Board's funding policy for each System, (ii) disclose the funding assets and liability measures as of the valuation date, and (iii) review the current funded status of each System and assess the funded status as an appropriate measure for determining future actuarially determined contributions.

The Board and staff of the State of Alaska may use this report for the review of the operations of JRS and NGNMRS. Use of this report, for any other purpose or by anyone other than the Board or staff of the State of Alaska may not be appropriate and may result in mistaken conclusions because of failure to understand applicable assumptions, methods or inapplicability of the report for that purpose. Because of the risk of misinterpretation of actuarial results, you should ask Buck to review any statement you wish to make on the results contained in this report. Buck will not accept any liability for any such statement made without review by Buck.

Summary of Results

The results of the June 30, 2019 roll-forward valuations are shown below (results from the June 30, 2018 valuations are shown for comparison purposes):

	June 30, 2018	June 30, 2019
Judicial Retirement System		
• Funded Status ¹		
○ Pension	78.8%	84.2%
○ Healthcare	189.2%	184.2%
○ Total	86.4%	91.7%
• Employer/State Contribution Rates ²		
○ Pension	77.8%	71.0%
○ Healthcare	6.1%	6.3%
○ Total	83.9%	77.3%
National Guard and Naval Militia Retirement System		
• Funded Status ¹	187.1%	185.6%
• Recommended Contribution, not less than zero ³	\$ 0	\$ 0

Actuarial Assumptions and Methods

In lieu of collecting new participant data as of June 30, 2019 and performing a full actuarial valuation, the actuarial liabilities are projected or “rolled forward” from the June 30, 2018 valuation date to June 30, 2019 by assuming the actuarial assumptions during the year are exactly realized. All data, actuarial assumptions, methods, and plan provisions are the same as those shown in the June 30, 2018 valuation reports dated August 9, 2019, with the following exceptions:

- For JRS, the salary increase assumption and the pensioner benefit increase assumption were modified to be 0% per year for two years, and 3.62% per year thereafter.
- For JRS, the administrative expense assumption is the average of the actual administrative expenses paid in the prior two years. For the June 30, 2018 valuation, the administrative expense assumptions were \$71,050 (pension) and \$19,250 (healthcare). For the June 30, 2019 valuation, these amounts were updated to \$61,000 (pension) and \$21,600 (healthcare).
- For NGNMRS, the administrative expense assumption is the average of the actual administrative expenses paid in the prior two years. For the June 30, 2018 valuation, the administrative expense assumption was \$242,000. For the June 30, 2019 valuation, this amount was updated to \$254,000.

¹ The funded status shown is based on the Actuarial Value of Assets. The funded status is different based on the Market Value of Assets.

² The June 30, 2018 valuation determined the contribution rates for FY21. The June 30, 2019 valuation determines the contribution rates for FY22. Total contribution rates are not less than the Normal Cost rate.

³ The June 30, 2018 valuation determined the recommended contribution for FY21. The June 30, 2019 valuation determines the recommended contribution for FY22.

The actuarial value of assets was calculated as of June 30, 2019 using actual assets and cash flows during FY19. Investment gains and losses are recognized at a rate of 20% per year. The actuarial value of assets must be within 20% plus/minus of the market value.

The FY19 actuarial gains/(losses) are shown below:

	JRS	NGNMRS
Asset gain/(loss)	\$ (3,555,000)	\$ (1,159,000)
Salary scale assumption change gain/(loss)	14,649,000	N/A
Healthcare benefit payment gain/(loss)	(27,000)	N/A
Contribution gain/(loss)	375,000	881,000
Administrative expense gain/(loss)	<u>17,000</u>	<u>(33,000)</u>
Total gain/(loss)	\$ 11,459,000	\$ (311,000)

Net actuarial gains/losses have the effect of decreasing/increasing the unfunded actuarial accrued liability versus what was expected based on the previous valuation. These gains/losses decrease/increase the employer contributions.

Where presented, references to “funded ratio”, “funded status”, and “unfunded actuarial accrued liability” typically are measured on an actuarial value of assets basis. It should be noted that the same measurements using market value of assets would result in different funded ratios and unfunded actuarial accrued liabilities. Moreover, these measures presented are appropriate for evaluating the need and level of future contributions but make no assessment regarding the funded status of the plan if the plan were to settle (i.e. purchase annuities) for a portion or all of its liabilities.

Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law. In particular, retiree group benefits models necessarily rely on the use of approximations and estimates and are sensitive to changes in these approximations and estimates. Small variations in these approximations and estimates may lead to significant changes in actuarial measurements. An analysis of the potential range of such future differences is beyond the scope of these valuations.

In our opinion, the actuarial assumptions used are reasonable, taking into account the experience of each System and reasonable long-term expectations, and represent our best estimate of the long-term anticipated experience under each System.

Assessment of Risks

Actuarial Standard of Practice No. 51 (“ASOP 51”) applies to actuaries performing funding calculations related to a pension plan. ASOP 51 does not apply to actuaries performing services in connection with other post-employment benefits, such as medical benefits. Accordingly, ASOP 51 does not apply to the retiree medical portion of JRS. Additional details regarding ASOP 51 are provided beginning on page 15 of this report.

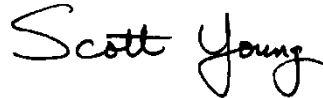
This report was prepared under our supervision and in accordance with all applicable Actuarial Standards of Practice. David Kershner and Scott Young are Fellows of the Society of Actuaries, Enrolled Actuaries, and Members of the American Academy of Actuaries. We meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained in this report.

Please let us know if you have any questions or if you would like to discuss these results in more detail. David can be reached at 602-803-6174 and Scott can be reached at 216-315-1929.

Sincerely,



David J. Kershner, FSA, EA, MAAA, FCA
Principal
Buck



Scott Young, FSA, EA, MAAA
Director
Buck

Attachments

cc: Mr. Kevin Worley, State of Alaska

Judicial Retirement System

	June 30, 2018	June 30, 2019
Pension		
Actuarial Accrued Liability	\$ 226,559,580	\$ 221,159,289
Actuarial Value of Assets (AVA)	<u>178,489,284</u>	<u>186,117,830</u>
Unfunded Actuarial Accrued Liability	\$ 48,070,296	\$ 35,041,459
Funded Ratio based on AVA	78.8%	84.2%
Market Value of Assets (MVA)	\$ 176,794,969	\$ 184,625,818
Funded Ratio based on MVA	78.0%	83.5%
Normal Cost with Administrative Expense Load	\$ 6,421,700	\$ 6,138,783
Healthcare		
Actuarial Accrued Liability	\$ 16,846,959	\$ 18,089,100
Actuarial Value of Assets (AVA)	<u>31,868,079</u>	<u>33,319,896</u>
Unfunded Actuarial Accrued Liability	\$ (15,021,120)	\$ (15,230,796)
Funded Ratio based on AVA	189.2%	184.2%
Market Value of Assets (MVA)	\$ 31,497,603	\$ 33,092,326
Funded Ratio based on MVA	187.0%	182.9%
Normal Cost with Administrative Expense Load	\$ 819,763	\$ 840,972
Total		
Actuarial Accrued Liability	\$ 243,406,539	\$ 239,248,389
Actuarial Value of Assets	<u>210,357,363</u>	<u>219,437,726</u>
Unfunded Actuarial Accrued Liability	\$ 33,049,176	\$ 19,810,663
Funded Ratio based on Actuarial Value of Assets	86.4%	91.7%
Market Value of Assets	\$ 208,292,572	\$ 217,718,144
Funded Ratio based on Market Value of Assets	85.6%	91.0%
Normal Cost with Administrative Expense Load	\$ 7,241,463	\$ 6,979,755
	FY21	FY22
Pension Contribution Rate		
Employer Normal Cost Rate	42.04%	39.72%
Past Service Cost Rate	<u>35.78%</u>	<u>31.25%</u>
Total Employer Contribution Rate, not less than Normal Cost Rate	77.82%	70.97%
Healthcare Contribution Rate		
Employer Normal Cost Rate	6.12%	6.28%
Past Service Cost Rate	<u>(6.45)%</u>	<u>(6.64)%</u>
Total Employer Contribution Rate, not less than Normal Cost Rate	6.12%	6.28%
Total Contribution Rate		
Employer Normal Cost Rate	48.16%	46.00%
Past Service Cost Rate	<u>35.78%</u>	<u>31.25%</u>
Total Employer Contribution Rate, not less than Normal Cost Rate	83.94%	77.25%

Judicial Retirement System (continued)

Pension						
Charge	Amortization Period		Balances		Beginning-of-Year Payment	
	Date Created	Years Left	Initial	Outstanding		
Initial Unfunded Liability ¹	06/30/2002	8	\$ 5,864,449	\$ 4,775,895	\$	693,024
FY03/FY04 Loss ¹	06/30/2004	10	855,068	774,005		93,628
Loss due to revaluation of plan liabilities ¹	06/30/2005	11	9,115,451	8,560,541		960,741
FY05/FY06 Loss ¹	06/30/2006	12	18,186,558	17,575,368		1,844,959
FY07 Loss	06/30/2007	13	1,364,721	1,348,642		133,326
FY08 Gain	06/30/2008	14	(29,014,739)	(29,181,416)		(2,732,533)
FY09 Loss	06/30/2009	15	21,273,454	21,667,076		1,931,321
Change in Assumptions	06/30/2010	16	13,976,981	14,354,146		1,223,185
FY10 Loss	06/30/2010	16	6,474,780	6,649,499		566,635
FY11 Loss	06/30/2011	17	7,397,917	7,648,503		625,436
FY12 Loss	06/30/2012	18	11,916,371	12,361,447		973,206
FY13 Loss	06/30/2013	19	7,033,497	7,053,234		536,200
Change in Assumptions	06/30/2014	20	4,219,851	4,369,484		321,595
FY14 Gain	06/30/2014	20	(14,458,986)	(14,971,699)		(1,101,920)
FY15 Gain	06/30/2015	21	(3,325,706)	(3,427,850)		(244,827)
FY16 Gain	06/30/2016	22	(9,932,623)	(10,169,050)		(706,312)
FY17 Gain	06/30/2017	23	(1,137,538)	(1,154,576)		(78,135)
Change in Assumptions	06/30/2018	24	10,343,783	10,389,947		686,282
FY18 Gain	06/30/2018	24	(12,096,419)	(12,150,406)		(802,565)
Change in Assumptions	06/30/2019	25	(14,775,890)	(14,775,890)		(954,103)
FY19 Loss	06/30/2019	25	3,344,559	<u>3,344,559</u>		<u>215,964</u>
Total				\$ 35,041,459	\$	4,185,107

¹ Pension and healthcare split was done using a ratio of unfunded actuarial accrued liability as of June 30, 2006.

Judicial Retirement System (continued)

Healthcare						
Charge	Amortization Period		Balances		Beginning-of-Year Payment	
	Date Created	Years Left	Initial	Outstanding		
Initial Unfunded Liability	06/30/2002	8	\$ 2,295,257	\$ 1,869,214	\$	271,239
FY03/FY04 Loss	06/30/2004	10	334,660	302,933		36,645
Loss due to revaluation of plan liabilities	06/30/2005	11	3,567,649	3,350,464		376,019
FY05/FY06 Loss	06/30/2006	12	7,117,943	6,878,733		722,089
FY07 Gain	06/30/2007	13	(810,073)	(800,529)		(79,140)
Change in Assumptions	06/30/2008	14	789,072	793,606		74,313
FY08 Gain	06/30/2008	14	(14,011,596)	(14,092,089)		(1,319,576)
FY09 Loss	06/30/2009	15	901,355	918,035		81,830
Change in Assumptions	06/30/2010	16	2,006,196	2,060,333		175,571
FY10 Gain	06/30/2010	16	(1,930,656)	(1,982,752)		(168,960)
FY11 Loss	06/30/2011	17	550,376	569,018		46,530
Change in Assumptions	06/30/2012	18	353,605	366,811		28,879
FY12 Gain	06/30/2012	18	(5,516,210)	(5,722,242)		(450,507)
FY13 Loss	06/30/2013	19	226,259	234,807		17,850
Change in Assumptions	06/30/2014	20	772,305	799,690		58,857
FY14 Gain	06/30/2014	20	(3,342,464)	(3,460,987)		(254,729)
FY15 Gain	06/30/2015	21	(1,416,996)	(1,460,517)		(104,315)
Change in Method	06/30/2016	22	(3,567,789)	(3,652,714)		(253,707)
FY16 Gain	06/30/2016	22	(425,711)	(435,845)		(30,273)
FY17 Gain	06/30/2017	23	(586,113)	(594,892)		(40,259)
Change in Assumptions/EGWP	06/30/2018	24	1,009,960	1,014,467		67,008
FY18 Gain	06/30/2018	24	(2,148,478)	(2,158,066)		(142,546)
Change in Assumptions	06/30/2019	25	126,754	126,754		8,185
FY19 Gain	06/30/2019	25	(155,028)	<u>(155,028)</u>		<u>(10,011)</u>
Total				\$ (15,230,796)	\$	(889,008)

Judicial Retirement System (continued)

Total						
Charge	Amortization Period		Balances		Beginning-of-Year Payment	
	Date Created	Years Left	Initial	Outstanding		
Initial Unfunded Liability	06/30/2002	8	\$ 8,159,706	\$ 6,645,109	\$	964,263
FY03/FY04 Loss	06/30/2004	10	1,189,728	1,076,938		130,273
Loss due to revaluation of plan liabilities	06/30/2005	11	12,683,100	11,911,005		1,336,760
FY05/FY06 Loss	06/30/2006	12	25,304,501	24,454,101		2,567,048
FY07 Loss	06/30/2007	13	554,648	548,113		54,186
Change in Assumptions	06/30/2008	14	789,072	793,606		74,313
FY08 Gain	06/30/2008	14	(43,026,335)	(43,273,505)		(4,052,109)
FY09 Loss	06/30/2009	15	22,174,809	22,585,111		2,013,151
Change in Assumptions	06/30/2010	16	15,983,177	16,414,479		1,398,756
FY10 Loss	06/30/2010	16	4,544,124	4,666,747		397,675
FY11 Loss	06/30/2011	17	7,948,293	8,217,521		671,966
Change in Assumptions	06/30/2012	18	353,605	366,811		28,879
FY12 Loss	06/30/2012	18	6,400,161	6,639,205		522,699
FY13 Loss	06/30/2013	19	7,259,756	7,288,041		554,050
Change in Assumptions	06/30/2014	20	4,992,156	5,169,174		380,452
FY14 Gain	06/30/2014	20	(17,801,450)	(18,432,686)		(1,356,649)
FY15 Gain	06/30/2015	21	(4,742,702)	(4,888,367)		(349,142)
Change in Method	06/30/2016	22	(3,567,789)	(3,652,714)		(253,707)
FY16 Gain	06/30/2016	22	(10,358,334)	(10,604,895)		(736,585)
FY17 Gain	06/30/2017	23	(1,723,651)	(1,749,468)		(118,394)
Change in Assumptions/EGWP	06/30/2018	24	11,353,743	11,404,414		753,290
FY18 Gain	06/30/2018	24	(14,244,897)	(14,308,472)		(945,111)
Change in Assumptions	06/30/2019	25	(14,649,136)	(14,649,136)		(945,918)
FY18 Loss	06/30/2019	25	3,189,531	<u>3,189,531</u>		<u>205,953</u>
Total				\$ 19,810,663	\$	3,296,099

Judicial Retirement System (continued)

Changes in Fair Value of Assets	Pension	Healthcare	Total
1. Fair Value of Assets as of June 30, 2018	\$ 176,794,969	\$ 31,497,603	\$ 208,292,572
2. Additions:			
a. Employee Contributions	\$ 813,374	\$ 0	\$ 813,374
b. Employer Contributions	5,347,675	591,397	5,939,072
c. State Appropriation	4,909,000	0	4,909,000
d. Interest and Dividend Income	3,292,478	587,184	3,879,662
e. Net Appreciation/(Depreciation) in Fair Value of Investments	7,229,170	1,327,208	8,556,378
f. Medicare Part D Subsidy	0	96,542	96,542
g. Other	<u>0</u>	<u>2,291</u>	<u>2,291</u>
h. Total Additions	\$ 21,591,697	\$ 2,604,622	\$ 24,196,319
3. Deductions:			
a. Medical Benefits	\$ 0	\$ 978,813	\$ 978,813
b. Retirement Benefits	13,627,946	0	13,627,946
c. Investment Expenses	73,808	13,136	86,944
d. Administrative Expenses	59,094	17,950	77,044
e. Refunds of Contributions	<u>0</u>	<u>0</u>	<u>0</u>
f. Total Deductions	\$ 13,760,848	\$ 1,009,899	\$ 14,770,747
4. Fair Value of Assets as of June 30, 2019	\$ 184,625,818	\$ 33,092,326	\$ 217,718,144
Approximate Fair Value Investment Return Rate During FY19 Net of Investment Expenses	6.0%	6.1%	6.0%

Judicial Retirement System (continued)

Development of Actuarial Value of Assets	Pension	Healthcare	Total
1. Deferral of Investment Gain/(Loss) for FY19			
a. Fair Value of Assets as of June 30, 2018	\$ 176,794,969	\$ 31,497,603	\$ 208,292,572
b. Contributions	11,070,049	591,397	11,661,446
c. Medicare Part D Subsidy	0	96,542	96,542
d. Benefit Payments	13,627,946	978,813	14,606,759
e. Administrative Expenses	59,094	17,950	77,044
f. Actual Investment Return (net of investment expenses)	10,447,840	1,903,547	12,351,387
g. Expected Return Rate (net of investment expenses)	7.38%	7.38%	7.38%
h. Expected Return, Weighted for Timing	13,095,028	2,313,330	15,408,358
i. Investment Gain/(Loss) for the Year, (f) - (h)	(2,647,188)	(409,783)	(3,056,971)
2. Actuarial Value as of June 30, 2019			
a. Fair Value as of June 30, 2019	\$ 184,625,818	\$ 33,092,326	\$ 217,718,144
b. Deferred Investment Gain/(Loss)	(1,492,012)	(227,570)	(1,719,582)
c. Preliminary Actuarial Value at June 30, 2019, (a) - (b)	186,117,830	33,319,896	219,437,726
d. Upper Limit: 120% of Fair Value as of June 30, 2019	221,550,982	39,710,791	261,261,773
e. Lower Limit: 80% of Fair Value as of June 30, 2019	147,700,654	26,473,861	174,174,515
f. Actuarial Value as of June 30, 2019, [(c) limited by (d) and (e)]	\$ 186,117,830	\$ 33,319,896	\$ 219,437,726
g. Ratio of Actuarial Value of Assets to Fair Value of Assets	100.8%	100.7%	100.8%
h. Approximate Actuarial Value Investment Return Rate During FY19 Net of Investment Expenses	5.8%	5.6%	5.8%

Judicial Retirement System (continued)

Pension				
Fiscal Year Ending	Asset Gain/(Loss)	Gain/(Loss) Recognized in Prior Years	Gain/(Loss) Recognized This Year	Gain/(Loss) Deferred to Future Years
6/30/2015	\$ (6,914,160)	\$ (5,531,328)	\$ (1,382,832)	\$ 0
6/30/2016	(12,208,288)	(7,324,974)	(2,441,658)	(2,441,656)
6/30/2017	7,229,597	2,891,838	1,445,919	2,891,840
6/30/2018	292,590	58,518	58,518	175,554
6/30/2019	<u>(2,647,188)</u>	<u>0</u>	<u>(529,438)</u>	<u>(2,117,750)</u>
Total	\$ (14,247,449)	\$ (9,905,946)	\$ (2,849,491)	\$ (1,492,012)

Healthcare				
Fiscal Year Ending	Asset Gain/(Loss)	Gain/(Loss) Recognized in Prior Years	Gain/(Loss) Recognized This Year	Gain/(Loss) Deferred to Future Years
6/30/2015	\$ (1,375,481)	\$ (1,100,384)	\$ (275,097)	\$ 0
6/30/2016	(2,359,113)	(1,415,469)	(471,823)	(471,821)
6/30/2017	1,282,441	512,976	256,488	512,977
6/30/2018	98,500	19,700	19,700	59,100
6/30/2019	<u>(409,783)</u>	<u>0</u>	<u>(81,957)</u>	<u>(327,826)</u>
Total	\$ (2,763,436)	\$ (1,983,177)	\$ (552,689)	\$ (227,570)

Total				
Fiscal Year Ending	Asset Gain/(Loss)	Gain/(Loss) Recognized in Prior Years	Gain/(Loss) Recognized This Year	Gain/(Loss) Deferred to Future Years
6/30/2015	\$ (8,289,641)	\$ (6,631,712)	\$ (1,657,929)	\$ 0
6/30/2016	(14,567,401)	(8,740,443)	(2,913,481)	(2,913,477)
6/30/2017	8,512,038	3,404,814	1,702,407	3,404,817
6/30/2018	391,090	78,218	78,218	234,654
6/30/2019	<u>(3,056,971)</u>	<u>0</u>	<u>(611,395)</u>	<u>(2,445,576)</u>
Total	\$ (17,010,885)	\$ (11,889,123)	\$ (3,402,180)	\$ (1,719,582)

National Guard and Naval Militia Retirement System

	June 30, 2018	June 30, 2019
Actuarial Accrued Liability	\$ 21,934,014	\$ 22,592,882
Actuarial Value of Assets	<u>41,031,353</u>	<u>41,939,204</u>
Unfunded Actuarial Accrued Liability	\$ (19,097,339)	\$ (19,346,322)
Funded Ratio based on Actuarial Value of Assets	187.1%	185.6%
Market Value of Assets	\$ 39,418,117	\$ 40,964,997
Funded Ratio based on Market Value of Assets	179.7%	181.3%
Normal Cost	\$ 483,551	\$ 483,551
Past Service Cost	(2,988,961)	(3,027,930)
Administrative Expense Load	<u>242,000</u>	<u>254,000</u>
Total Contribution, not less than zero	\$ 0	\$ 0
Fiscal Year Contribution Applies to	FY21	FY22

National Guard and Naval Militia Retirement System (continued)

Changes in Fair Value of Assets

1. Fair Value of Assets as of June 30, 2018	\$ 39,418,117
2. Additions:	
a. Employer Contributions	\$ 851,686
b. Investment Income	2,335,887
c. Other	<u>0</u>
d. Total Additions	\$ 3,187,573
3. Deductions:	
a. Retirement Benefits	\$ 1,343,753
b. Investment Expenses	14,602
c. Administrative Expenses	<u>282,338</u>
d. Total Deductions	\$ 1,640,693
4. Fair Value of Assets as of June 30, 2019	\$ 40,964,997

Approximate Fair Value Investment Return Rate
During FY19 Net of Investment Expenses

5.9%

National Guard and Naval Militia Retirement System (continued)

Development of Actuarial Value of Assets

1.	Deferral of Investment Gain/(Loss) for FY19		
a.	Fair Value of Assets as of June 30, 2018	\$	39,418,117
b.	Contributions		851,686
c.	Benefit Payments		1,343,753
d.	Administrative Expenses		282,338
e.	Actual Investment Return (net of investment expenses)		2,321,285
f.	Expected Return Rate (net of investment expenses)		7.00%
g.	Expected Return, Weighted for Timing		2,728,698
h.	Investment Gain/(Loss) for the Year, (e) - (g)		(407,413)
2.	Actuarial Value as of June 30, 2019		
a.	Fair Value as of June 30, 2019	\$	40,964,997
b.	Deferred Investment Gain/(Loss)		(974,207)
c.	Preliminary Actuarial Value at June 30, 2019, (a) - (b)		41,939,204
d.	Upper Limit: 120% of Fair Value as of June 30, 2019		49,157,996
e.	Lower Limit: 80% of Fair Value as of June 30, 2019		32,771,998
f.	Actuarial Value as of June 30, 2019, [(c) limited by (d) and (e)]	\$	41,939,204
g.	Ratio of Actuarial Value of Assets to Fair Value of Assets		102.4%
h.	Approximate Actuarial Value Investment Return Rate During FY19 Net of Investment Expenses		4.1%

Fiscal Year Ending	Asset Gain/(Loss)	Gain/(Loss) Recognized in Prior Years	Gain/(Loss) Recognized This Year	Gain/(Loss) Deferred to Future Years
6/30/2015	\$ (2,241,223)	\$ (1,792,980)	\$ (448,243)	\$ 0
6/30/2016	(2,606,836)	(1,564,101)	(521,367)	(521,368)
6/30/2017	704,309	281,724	140,862	281,723
6/30/2018	(681,054)	(136,211)	(136,211)	(408,632)
6/30/2019	<u>(407,413)</u>	<u>0</u>	<u>(81,483)</u>	<u>(325,930)</u>
Total	\$ (5,232,217)	\$ (3,211,568)	\$ (1,046,442)	\$ (974,207)

Actuarial Standard of Practice No. 51 (ASOP 51)

Funding future retirement benefits prior to when those benefits become due involves assumptions regarding future economic and demographic experience. These assumptions are applied to calculate actuarial liabilities, current contribution requirements, and the funded status of the plans. However, to the extent future experience deviates from the assumptions used, variations will occur in these calculated values. These variations create risk to the plans. Understanding the risks to the funding of the plans is important.

A new Actuarial Standard of Practice (ASOP) has been adopted for measurements on or after November 1, 2018 - Actuarial Standard of Practice No. 51 ("ASOP 51")¹. ASOP 51 requires certain disclosures of potential risks to the plans and provides useful information for intended users of actuarial reports that determine plan contributions or evaluate the adequacy of specified contribution levels to support benefit provisions.

Under ASOP 51, risk is defined as the potential of actual future measurements deviating from expected future measurements resulting from actual future experience deviating from actuarially assumed experience.

It is important to note that not all risk is negative, but all risk should be understood and accepted based on knowledge, judgement and educated decisions. Future measurements may deviate in ways that produce positive or negative financial impacts to the plan.

In the actuary's professional judgment, the following risks may reasonably be anticipated to significantly affect the pension plans' future financial condition and contribution requirements.

- Investment Risk – potential that the investment return will be different than the return (7.38% (JRS) and 7.00% (NGNMRS)) expected in the actuarial valuation
- Contribution Risk – potential that the contribution actually made will be different than the recommended contribution in the actuarial valuation
- Long-Term Return on Investment Risk – potential that changes in long-term capital market assumptions or the plan's asset allocation will create the need to update the long-term return on investment assumption
- Longevity Risk – potential that participants live longer than expected compared to the valuation mortality assumptions
- Salary Increase Risk² – potential that future salaries will be different than expected in the actuarial valuation
- Other Demographic Risk – potential that other demographic experience will be different than expected

The following information is provided to comply with ASOP 51 and furnish beneficial information on potential risks to the plan. **This list is not all-inclusive**; it is an attempt to identify the more significant risks and how those risks might affect the results shown in this report.

¹ ASOP 51 does not apply to the healthcare portion of JRS. Accordingly, all comments in this section relate to the pension portion of JRS.

² Salary increase risk applies to JRS only.

Note that ASOP 51 does not require the actuary to evaluate the ability or willingness of the plan sponsor to make contributions to the plans when due, or to assess the likelihood or consequences of potential future changes in law. In addition, this valuation report is not intended to provide investment advice or to provide guidance on the management or reduction of risk.

Assessment of Risks

Investment Risk

Plan costs are very sensitive to the market return.

- Any return on assets lower than assumed will increase costs.
- The plans use an actuarial value of assets that smooths gains and losses on market returns over a five-year period to help control some of the volatility in costs due to investment risk.
- Historical experience of actual returns is shown in Section 2.5 (JRS) and Section 2.4 (NGNMRS) of the June 30, 2018 reports dated August 9, 2019. This historical experience illustrates how returns can vary over time.

Contribution Risk

There is a risk to the plans when the actual contribution amount and the recommended amount differ.

- If the actual contributions are lower than the recommended contributions, the plans may not be sustainable in the long term.
- Any underpayment of the contribution will increase future contribution amounts to help pay off the additional Unfunded Actuarial Accrued Liability associated with the underpayment(s).

Long-Term Return on Investment Risk

Inherent in the long-term return on investment assumption is the expectation that the current rate will be used until the last benefit payment of the plan is made. There is a risk that sustained changes in economic conditions, changes in long-term future capital market assumptions, or changes to the plans' asset allocations will necessitate an update to the long-term return on investment assumption used.

- Under a lower long-term return on investment assumption, less investment return is available to pay plan benefits. This may lead to a need for increased employer contributions.
- The liabilities will be higher at a lower assumed rate of return because future benefits will have a lower discount rate applied when calculating the present value.
- A 1% decrease in the long-term return on investment assumption will increase actuarial accrued liability by approximately 11% for JRS and 9% for NGNMRS.

Longevity Risk

Plan costs will be increased as participants are expected to live longer.

- Benefits are paid over a longer lifetime when life expectancy is expected to increase. The longer duration of payments leads to higher liabilities.
- Health care has been improving, which affects the life expectancy of participants. As health care improves, leading to longer life expectancies, costs to the plans will increase.
- The mortality assumptions for the plans mitigates this risk by assuming future improvements in mortality. However, any improvement in future mortality greater than that expected by the current mortality assumptions would lead to increased costs for the plans.

Salary Increase Risk¹

Plan costs will be increased if actual salary increases are larger than expected.

- Higher than expected salary increases will produce higher benefits.
- The higher benefits may be partially offset by increased employee contributions due to higher salaries.
- If future payroll grows at a rate different than assumed, contributions as a percentage of payroll will be affected.

Other Demographic Risk

The plans are subject to risks associated with other demographic assumptions (e.g., retirement and termination assumptions). Differences between actual and expected experience for these assumptions tend to have less impact on the overall costs of the plans. The demographic assumptions used in the valuations are re-evaluated regularly as part of the 4-year experience studies to ensure the assumptions are consistent with long-term expectations.

¹ Salary increase risk applies to JRS only.



IS VALUE DEAD?

Alaska Retirement Management Board

Brent V. Woods, CFA

Chief Executive Officer

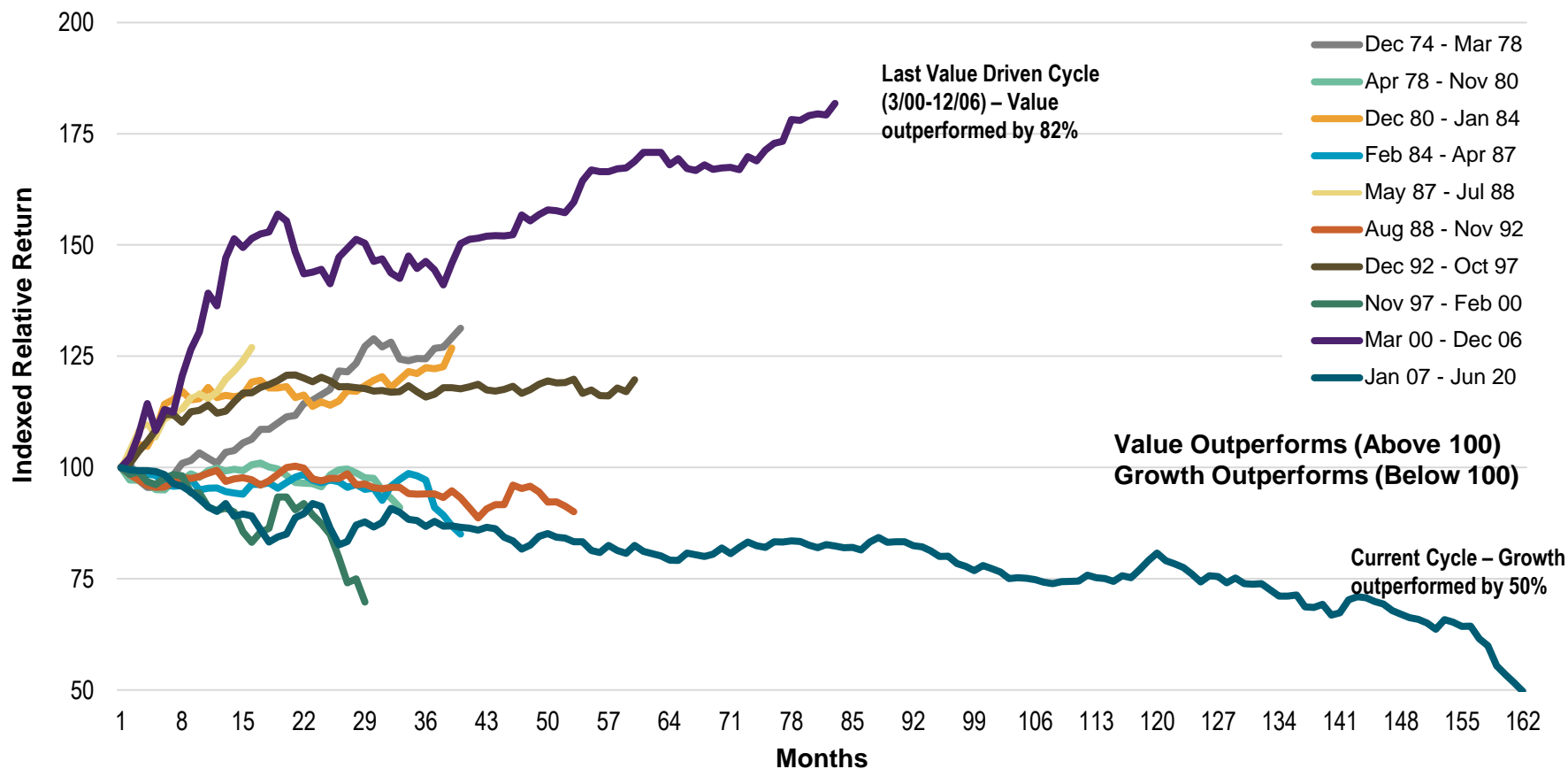
Lawrence Taylor

Institutional Client Portfolio Manager

September 17, 2020

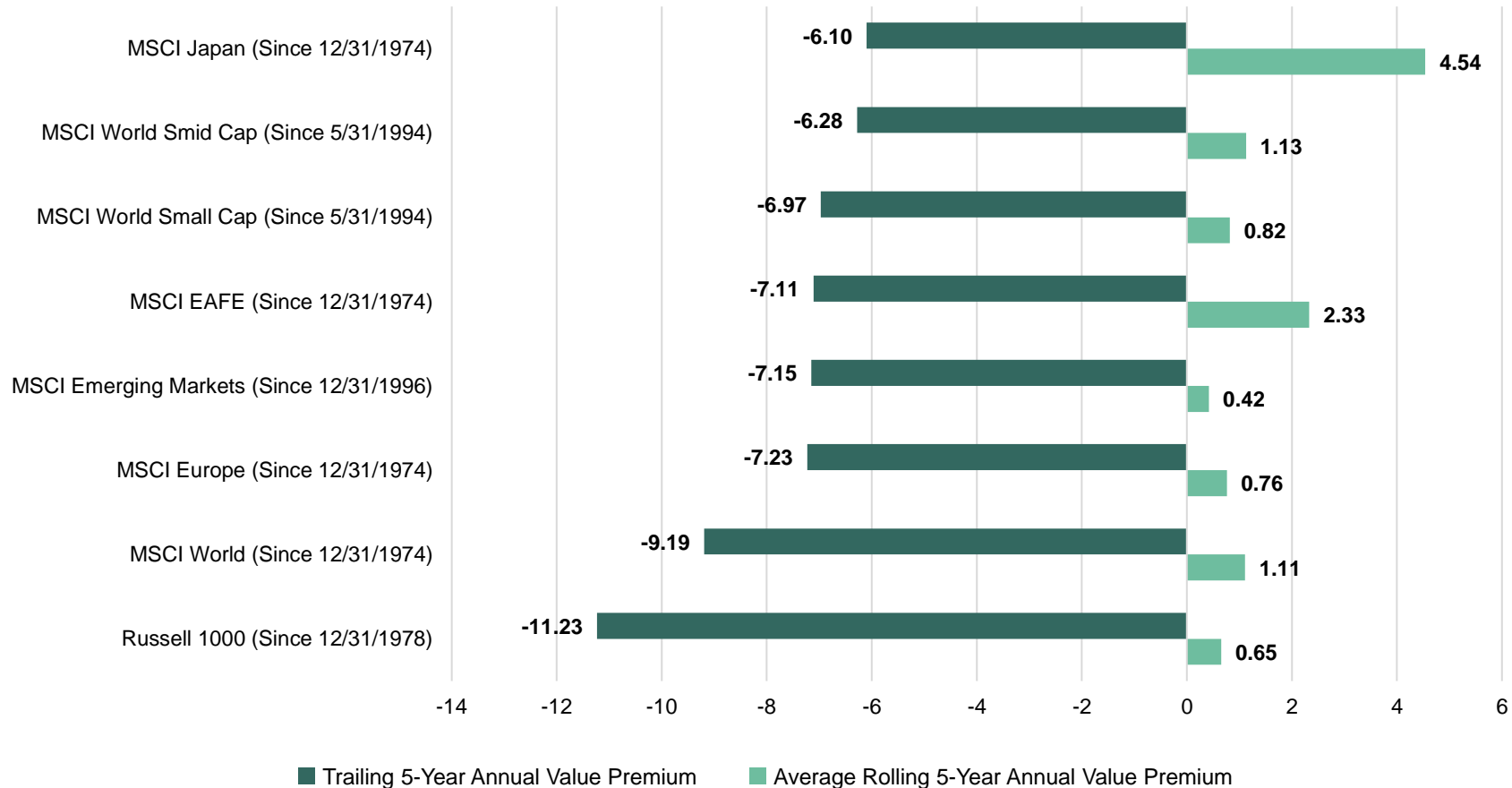
Understandable Question: Value has underperformed for more than a Decade

MSCI World Value/Growth Cycles - Indexed (100) Relative Return



DECEMBER 31, 1974 TO JUNE 30, 2020; RELATIVE RETURN OF MSCI WORLD VALUE INDEX VS MSCI WORLD GROWTH INDEX (100 INDEXED AT THE START OF EACH PEAK-TO-TROUGH CYCLE) | Data is indexed to a common starting point at the start of each relative performance cycle to facilitate comparison of figures with different magnitudes. Source: MSCI via FactSet. It is not possible to invest directly in an index. Past performance is not a guarantee of future results. It is possible for one index to outperform another and still experience negative absolute performance. Index performance does not reflect Brande's investment performance.

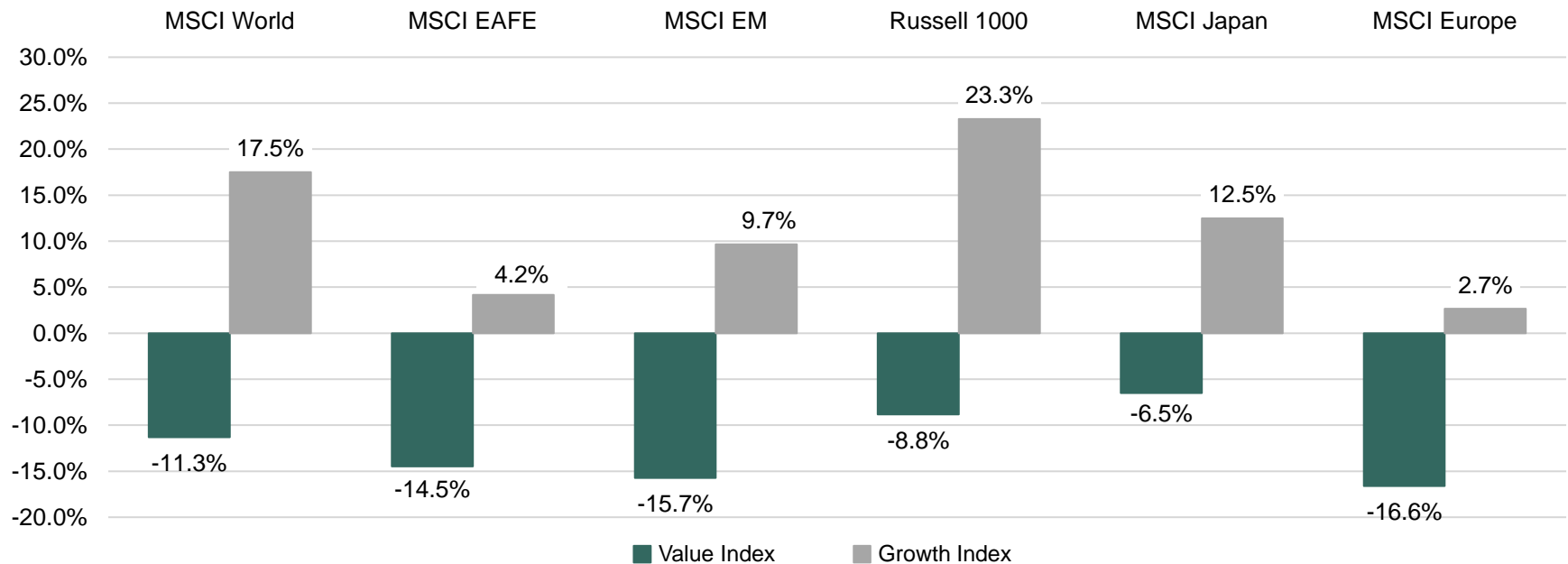
Value Has Lagged Across Several Markets



JANUARY 1, 1975 TO JUNE 30, 2020, ROLLING 5-YEAR ANNUALIZED RELATIVE RETURNS; VALUE INDEX LESS GROWTH INDEX | Source: MSCI via FactSet. Annualized 5-year rolling returns. Rolling periods represent a series of overlapping, smaller time periods within a single, longer-term time period. For example, over a 20-year period, there is one 20-year rolling period, eleven 10-year rolling periods, sixteen 5-year rolling periods, and so forth. Value premium calculated by subtracting growth index performance from value index performance; a positive result indicates the value index outperformed. Negative value premiums indicate the growth index outperformed. Performance shown for some indices is pre-inception and is the result of back-testing by the index provider. There may be frequently material differences between back-tested performance and actual results. It is not possible to invest directly in an index. Past performance is not a guarantee of future results.

Trailing One-Year Value Style Performance

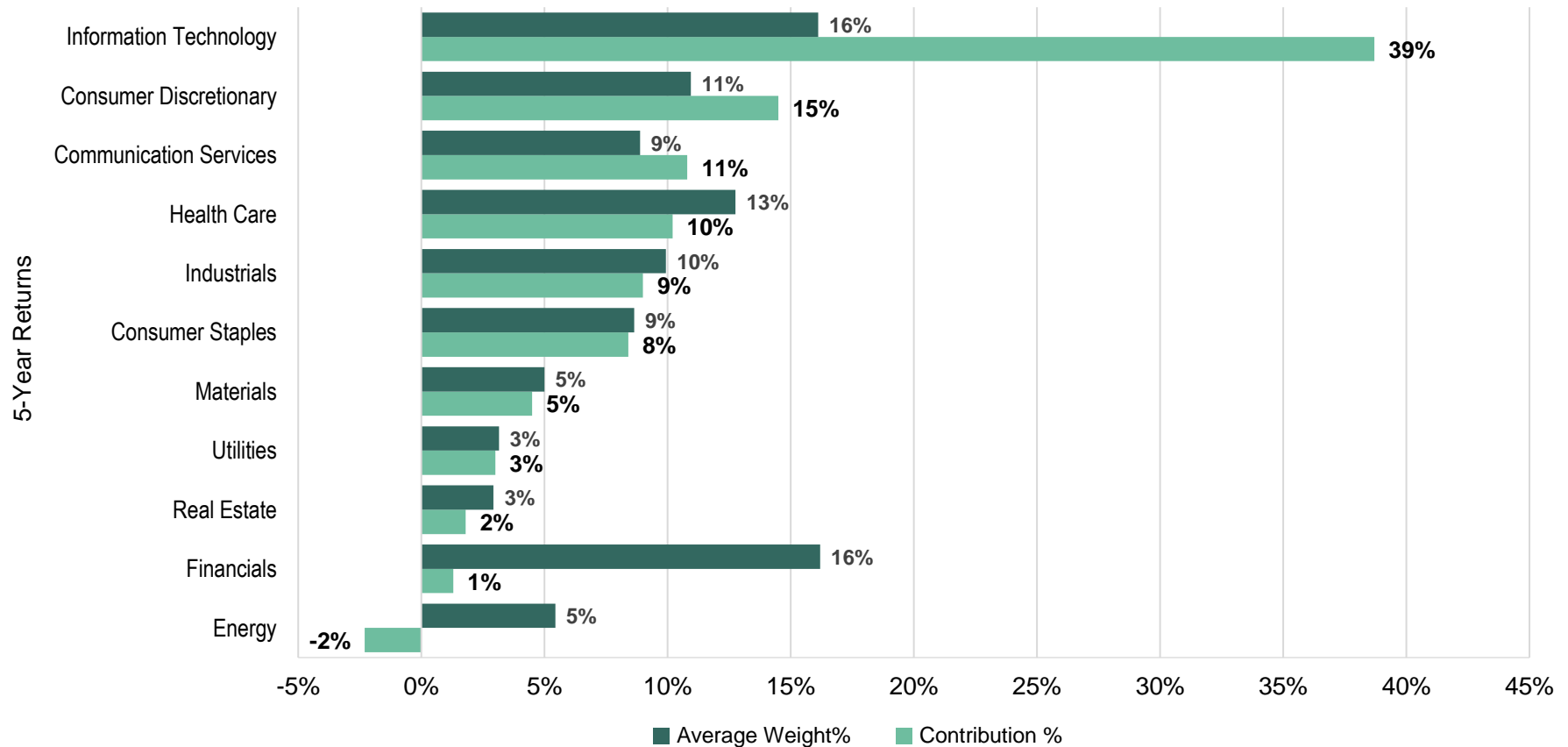
Value vs. Growth Index Performance



	MSCI World	MSCI EAFE	MSCI EM	Russell 1000	MSCI Japan	MSCI Europe
Value Relative to Growth	-28.8%	-18.6%	-25.4%	-32.1%	-19.0%	-19.3%

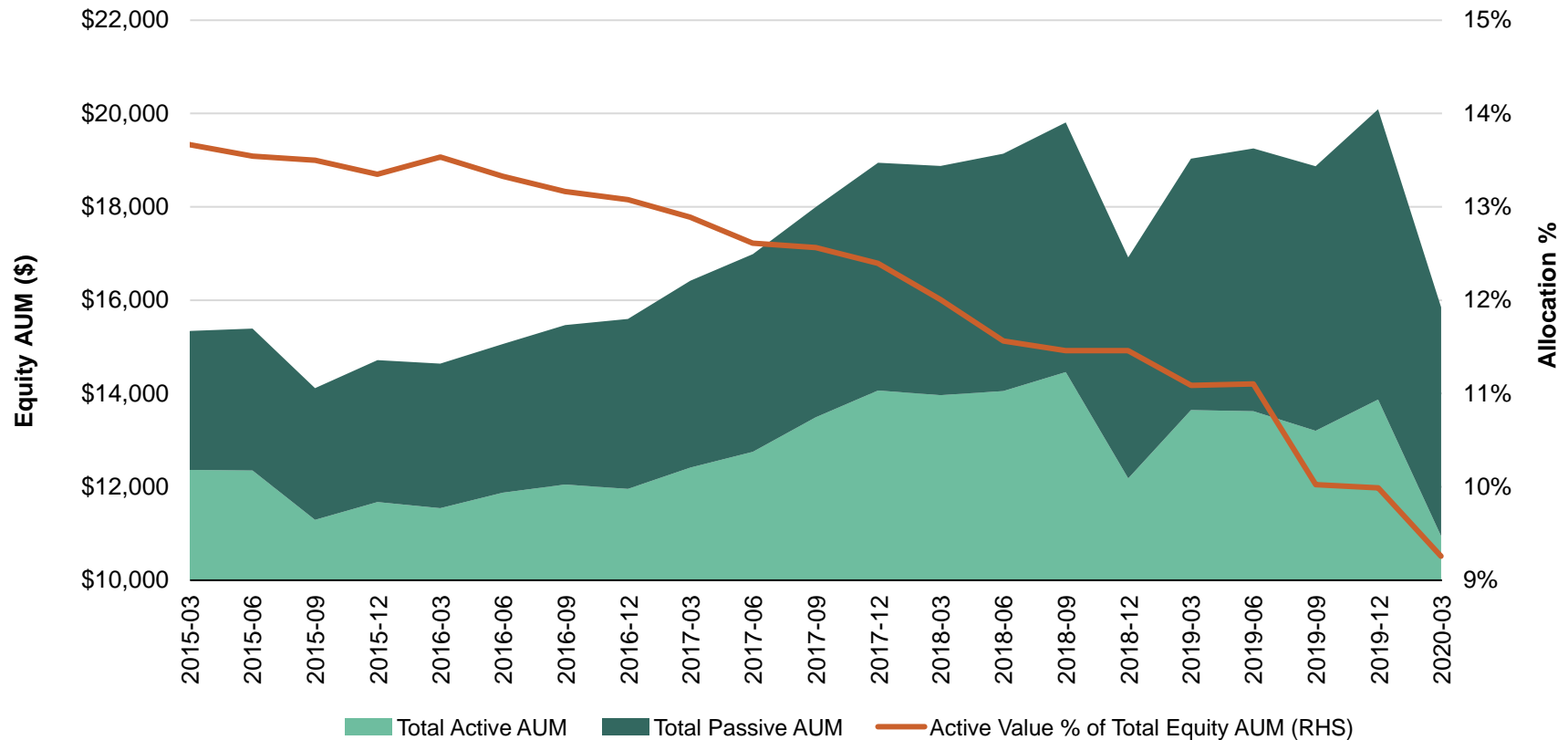
MSCI AC World Index Return Contribution

Best and Worst Performing Sectors



Allocation to Active Value Strategies

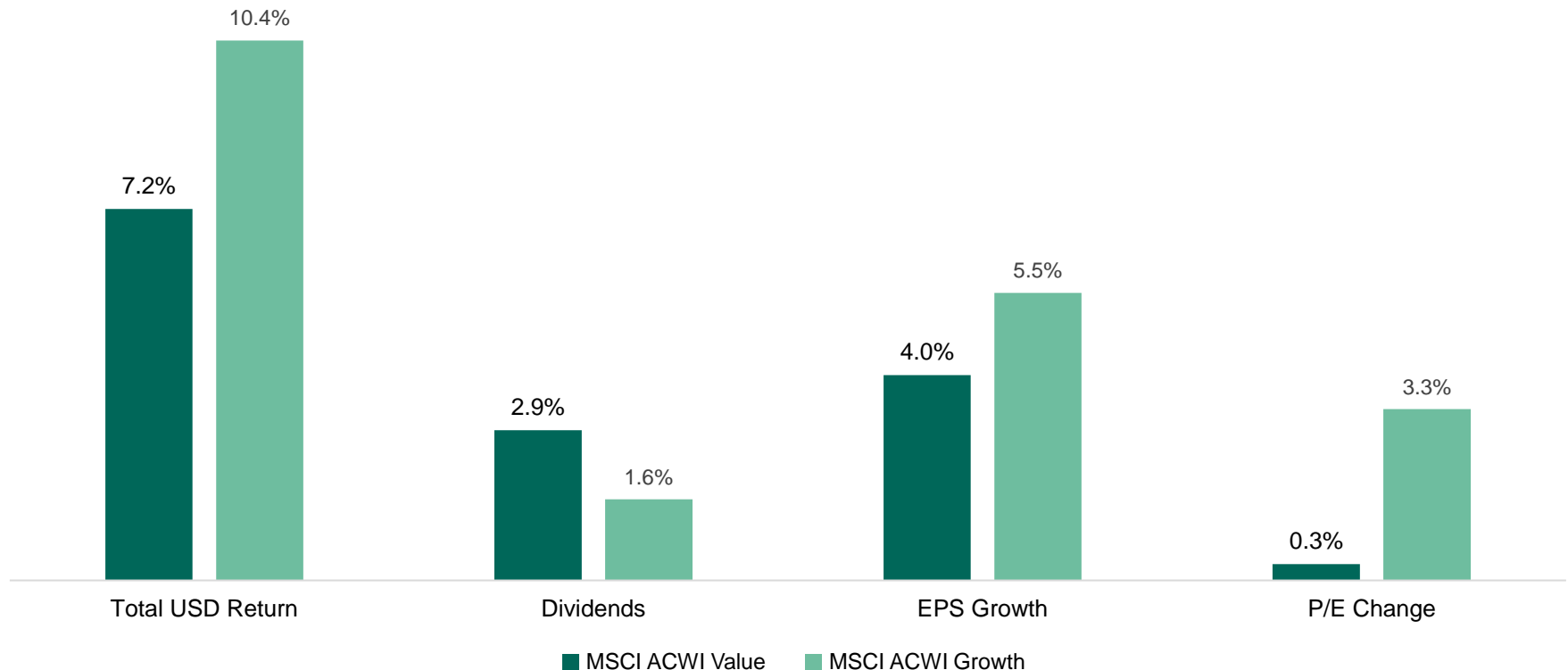
Down By Nearly \$1 Trillion Relative to 5 Years Ago



MARCH 31, 2015 TO MARCH 31, 2020 | Source: Morningstar. Active Equity represented by Morningstar US open end & ETF and Separate Account universes for US and International Equity. Active Value represented by Morningstar US open end & ETF and Separate Account value universes for US and International Equity. Passive Equity represented by Morningstar US open end & ETF category for US and International Equity.

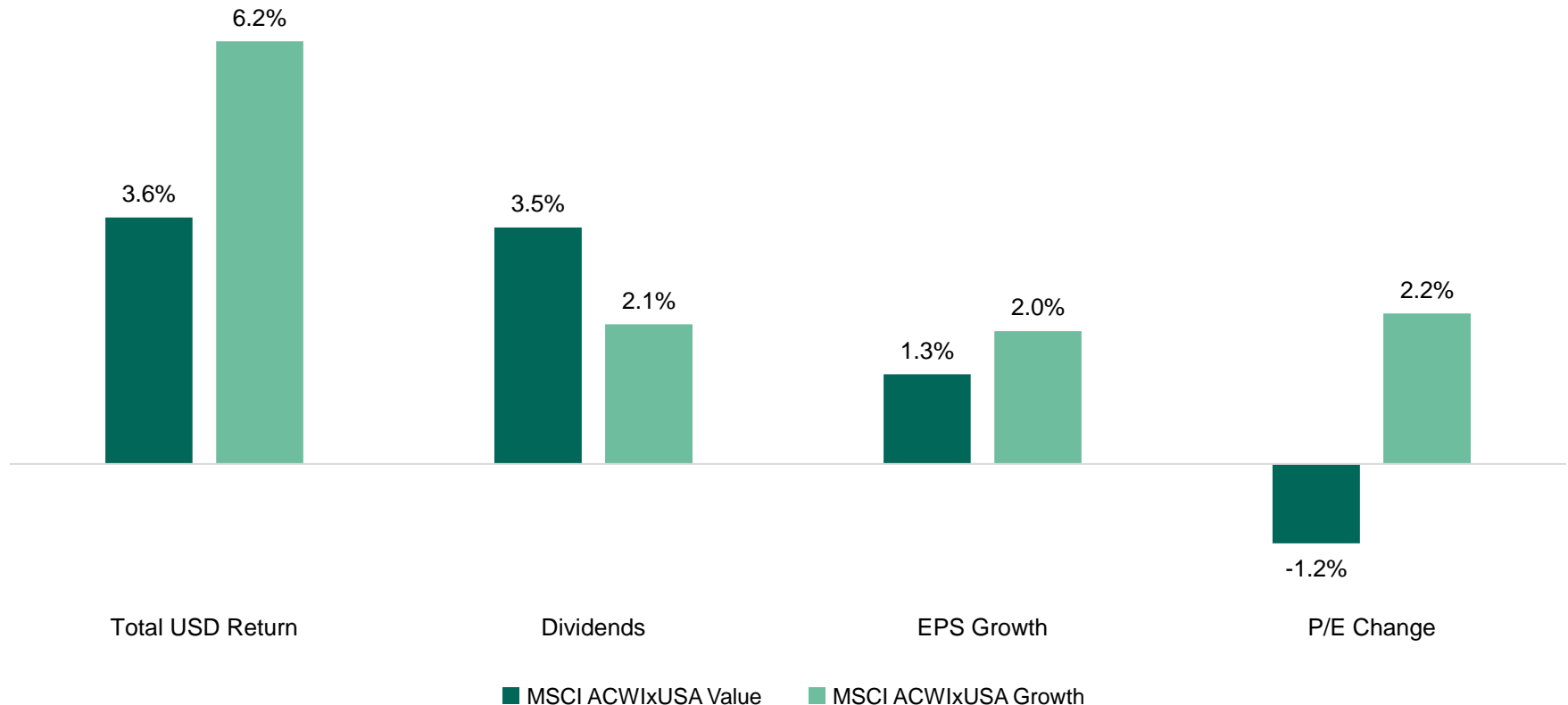
10-Year Annualized Return Decomposition

MSCI ACWI Value vs. MSCI ACWI Growth



10-Year Annualized Return Decomposition

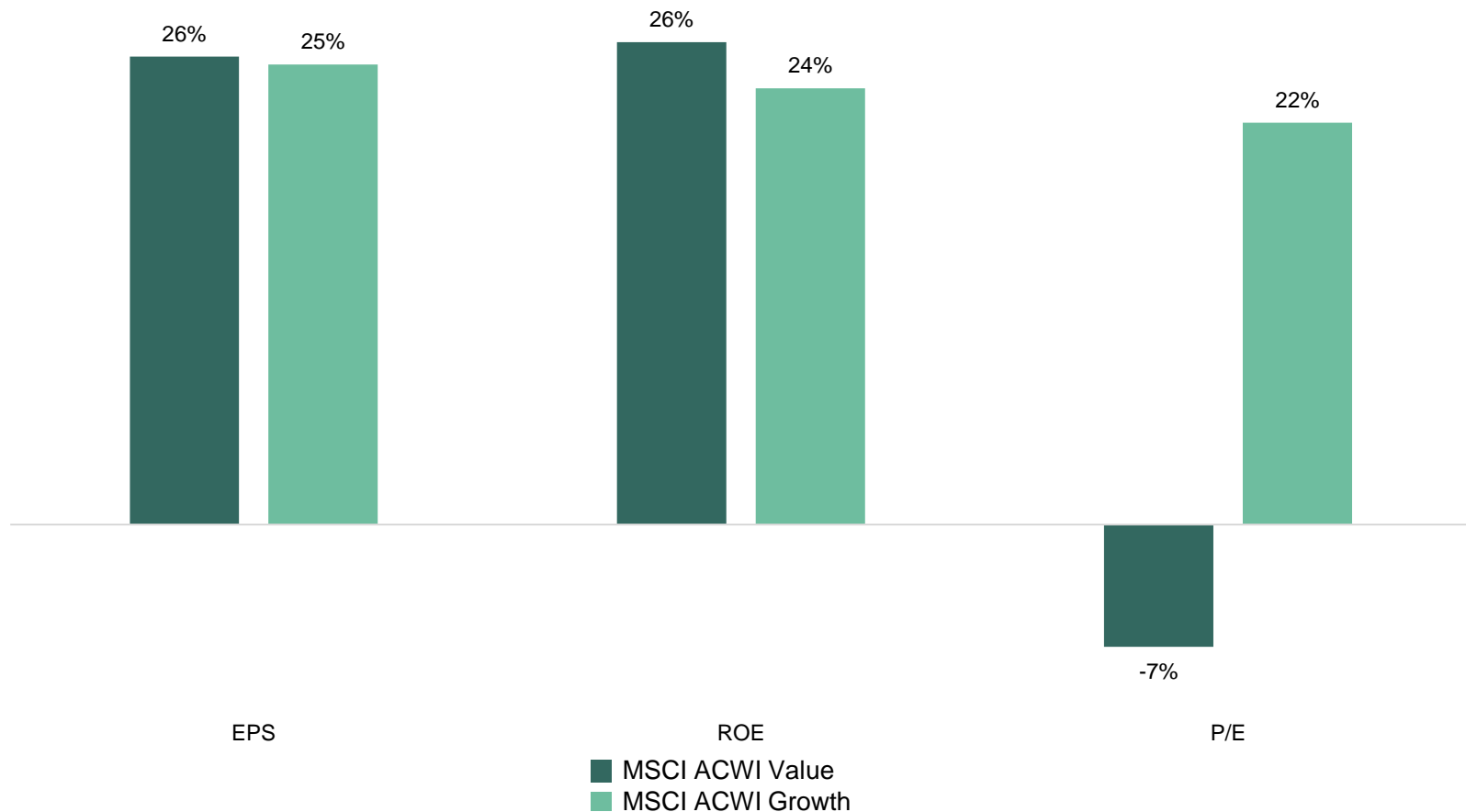
MSCI ACWIXUSA Value vs. MSCI ACWIXUSA Growth



Earnings Growth But Relative Multiple Contraction

Change in Earnings Per Share, Return on Equity, and Price/Earnings

3 Year



Real Interest Rates Are Currently At The Lowest Levels in 40 Years

10-year U.S. Treasury Rate Less the Core PCE Price Index



AS OF MAY 31, 2020 | Source: Bloomberg. The Core Personal Consumption Expenditure (PCE) Price Index provides a measure of the prices paid by people for domestic purchases of goods and services, excluding the prices of food and energy. The core PCE is the Fed's preferred inflation measure.

Interest Rate Correlation

Equity Market Segment	Correlation with 10Y Rate
Value (L/S)	0.52
Financials, excess to mkt	0.48
High Beta (L/S)	0.30
Industrials, excess to mkt	0.25
Energy, excess to mkt	0.19
R2000, excess to mkt	0.19
Materials, excess to mkt	0.19

ESG (L/S)	-0.11
Real Estate, excess to mkt	-0.21
Health Care, excess to mkt	-0.28
Quality (L/S)	-0.36
Growth (L/S)	-0.38
Staples, excess to mkt	-0.39
Utilities, excess to mkt	-0.43
Low Vol (L/S)	-0.43
Momentum (L/S)	-0.56

Source: J.P. Morgan Quantitative and Derivatives Strategy.

Interest Rates and Growth: Valuation Impact

Impact on Implied P/E Multiple

<u>Discount Rate</u>	<u>Growth Rate</u>						
	0%	1%	2%	3%	4%	5%	
	4%	24.5	31.5	42.8	61.9	96.2	160.4
	6%	16.6	19.8	24.5	31.4	42.6	61.2
	8%	12.5	14.3	16.6	19.8	24.4	31.3
	10%	10.0	11.1	12.5	14.3	16.6	19.8
	12%	8.3	9.1	10.0	11.1	12.5	14.3

This hypothetical example is for illustrative purposes only. It does not represent the performance of any specific investment. The implied P/E multiple is 1/discount rate. The discount rate is the equity risk premium + the risk-free rate, the lower the risk-free rate the lower the discount rate which then increases the implied P/E Multiple.

Zombie Valuations

Valuation Relative to Growth Stocks vs. History

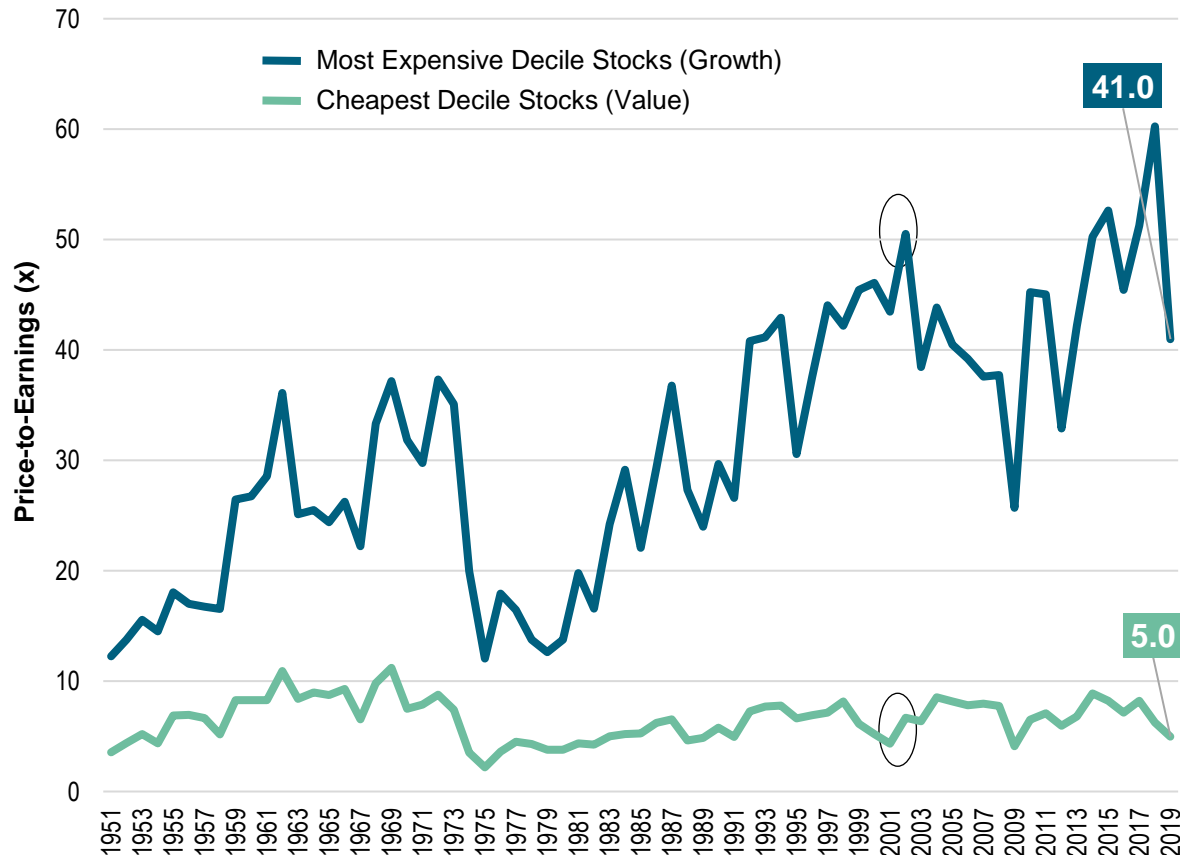


The dark green columns in the chart show the range in which the MSCI World Value Index has traded relative to the MSCI World Growth Index. The yellow line shows the average relative valuation, while the light green line shows the current relative valuation. When the light green line is below the gold line, the valuation of the value portion of the market is lower (compared to the World Growth Index) than it historically has been.

RELATIVE VALUE BASED ON VARIOUS FUNDAMENTAL RATIOS, DECEMBER 31, 1974 TO JUNE 30, 2020 | Source: MSCI via FactSet. Past performance is not a guarantee of future results. For each fundamental ratio (P/B-Price/Book, P/E-Price/Earnings, P/CF-Price/Cash Flow, Forward P/E-Forward Price/Earnings, EV/Sales-Enterprise Value/Sales, EV/EBITDA-Enterprise Value/Earnings Before Interest, Taxes, Depreciation, and Amortization), we calculate the average ratio of the MSCI World Value Index and divide it by the average ratio of the MSCI World Growth Index to determine the relative valuation.

Valuation Dispersion at Extreme Levels

Price/Earnings of Most Expensive Decile vs. Cheapest Decile (U.S.)



- **88% Discount:** Value stocks traded at a 88% discount to growth stocks based on P/E ratios.
- **Large Dispersion:** This level of discount was among its highest over the last 68 years. The only other time it was this high was during the peak of the tech bubble in the early 2000's.
- **Value's Resilience:** Historically, we've seen value stocks' remarkable resilience following similar levels of valuation dispersion.

DECEMBER 31, 1951 TO DECEMBER 31, 2019 | Source: Brandes analysis, Ken French Data Library at http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html. The deciles are based on the universe of US stocks from Ken French's data library. The universe is sorted into deciles based on P/E ratio, with the lowest P/E ratio (value) being in decile 10 and the highest P/E ratio (growth) in decile 1 (the library already divides the stocks into deciles). Price-to-earnings (P/E): Price per share divided by earnings per share. Price/Earnings average is a value-weighted average. Past performance is not a guarantee of future results. This material is intended for informational purposes only. The information provided in this material should not be considered a recommendation to purchase or sell any particular security. It should not be assumed that any strategy discussed was or will be profitable, or that the investment recommendations or decisions we make in the future will be profitable or will equal the investment performance referenced herein. The foregoing reflects the thoughts and opinions of Brandes Investment Partners® exclusively and is subject to change without notice. Brandes Investment Partners® is a registered trademark of Brandes Investment Partners, L.P. in the United States and Canada.

Technology Sector Has Become Expensive

Relative to MSCI ACWI ex Technology



AS OF JUNE 30, 2020 | Source: FactSet, MSCI. Technology Valuations represented by Technology Sector within the MSCI ACWI index. Enterprise value to sales is a valuation measure that compares the enterprise value of a company to its annual sales. Earnings before interest, tax, depreciation and amortization (EBITDA) is a measure of a company's operating performance. EV/EBITDA is a popular valuation to measure the value of a company.

Value Stocks Trading Near Lowest Relative Valuations to Growth in History

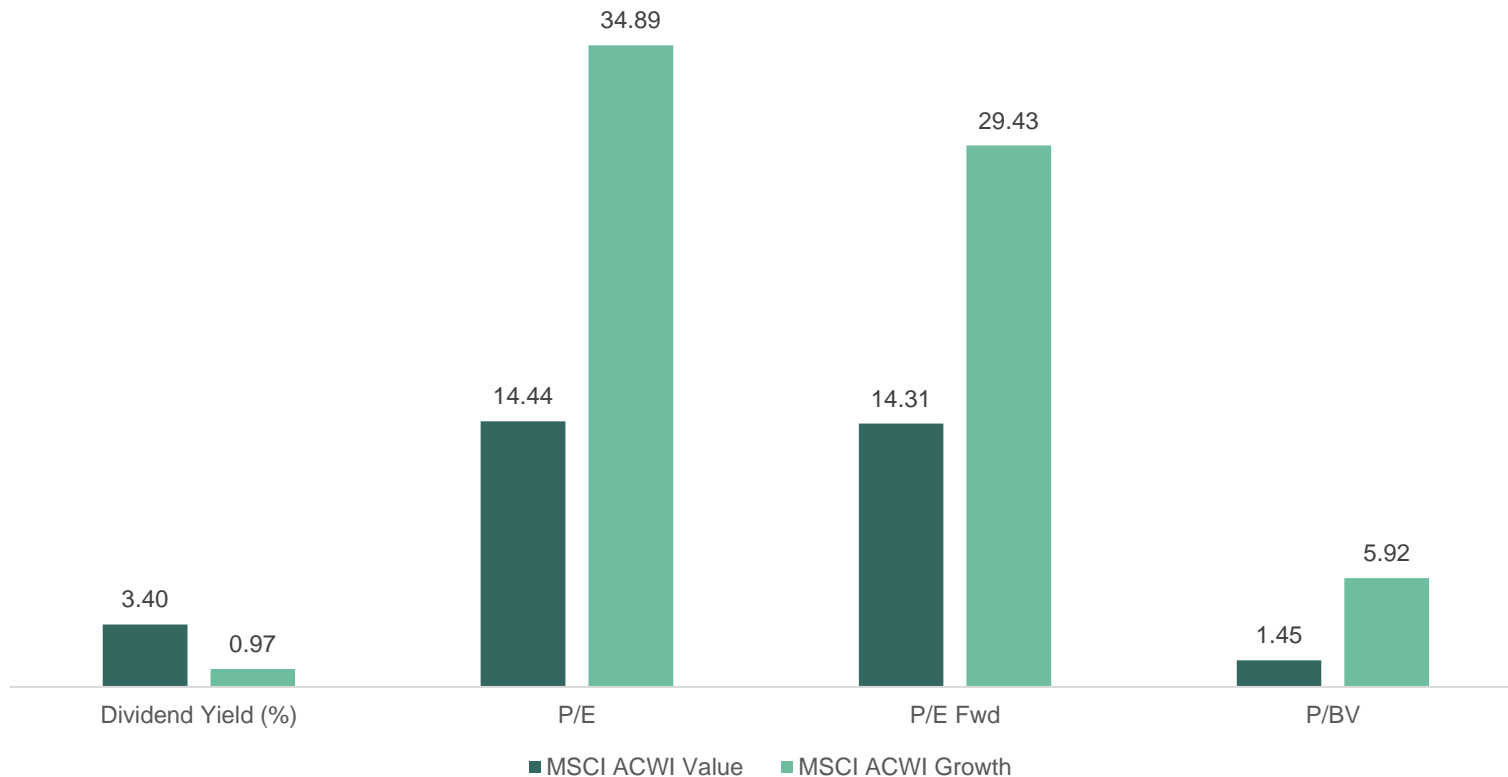
Percentile Rank (100th Is Least Expensive)

	Global	International	US	Emerging Markets	Europe	Japan	International Small Cap
Price to Book	100%	100%	99%	97%	100%	99%	100%
Price to Earnings (P/E)	100%	100%	97%	100%	100%	94%	86%
Dividend Yield	100%	100%	100%	100%	99%	99%	67%
Price to Cash Flow	100%	100%	95%	99%	100%	98%	96%
Forward P/E	100%	100%	100%	100%	98%	100%	89%
EV/Sales	96%	97%	95%	100%	100%	97%	98%
EV/EBITDA	98%	100%	95%	99%	100%	100%	

RELATIVE VALUE BASED ON VARIOUS FUNDAMENTAL RATIOS, DECEMBER 31, 1974 TO JUNE 30, 2020 | Source: MSCI via FactSet. Global: MSCI World Value Index and MSCI World Growth Index. International: MSCI EAFE Value Index and MSCI EAFE Growth Index. US: MSCI USA Value Index and MSCI USA Growth Index. Emerging Markets: MSCI EM Value Index and MSCI EM Growth Index. Europe: MSCI Europe Value Index and MSCI Europe Growth Index. Japan: MSCI Japan Value Index and MSCI Japan Growth Index. International Small Cap: MSCI EAFE Small Cap Value Index and MSCI EAFE Small Cap Growth Index. Past performance is not a guarantee of future results. For each fundamental ratio, we calculate the average ratio of the value index and divide it by the average ratio of the growth index to determine the relative valuation. EV: Enterprise Value. EBITDA: Earnings before interest, taxes, depreciation and amortization.

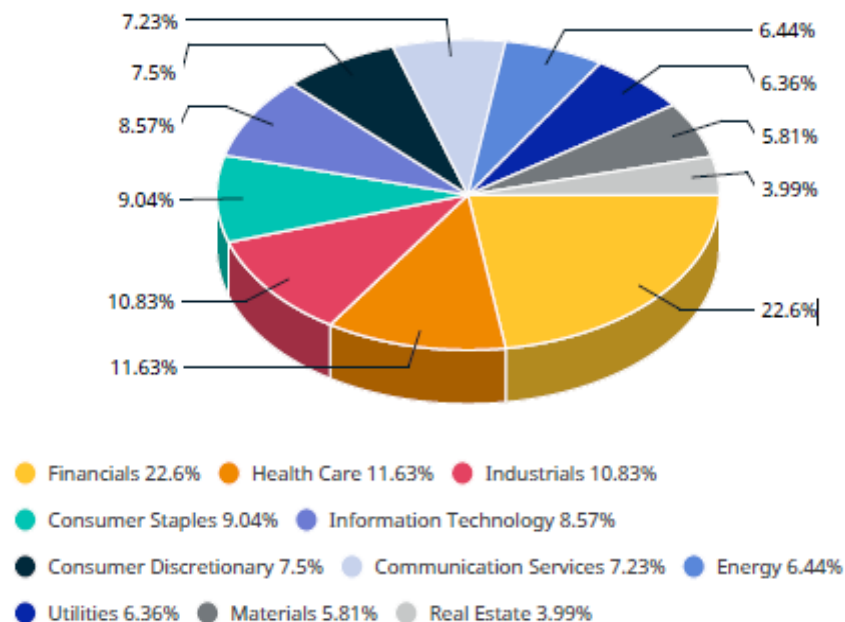
Rise from here?

Style Index Fundamentals



ACWI Value Sector weights

SECTOR WEIGHTS



Top 10 Holdings by Style Index

MSCI ACWI

MSCI ACWI Growth	Weight (%)
Apple	7.0%
Microsoft	5.6%
Amazon	5.1%
Facebook	2.3%
Alibaba	1.8%
Alphabet C	1.7%
Alphabet A	1.7%
Tencent	1.5%
Taiwan Semiconductor	1.4%
Nestle	1.3%

MSCI ACWI Value	Weight (%)
Johnson & Johnson	1.6%
Procter & Gamble	1.4%
JPMorgan Chase	1.3%
Home Depot	1.2%
Berkshire Hathaway	1.2%
Verizon	1.0%
Pfizer	0.9%
AT&T	0.9%
Disney	0.9%
Intel	0.9%

Top 10 Holdings by Style Index

MSCI ACWI ex USA

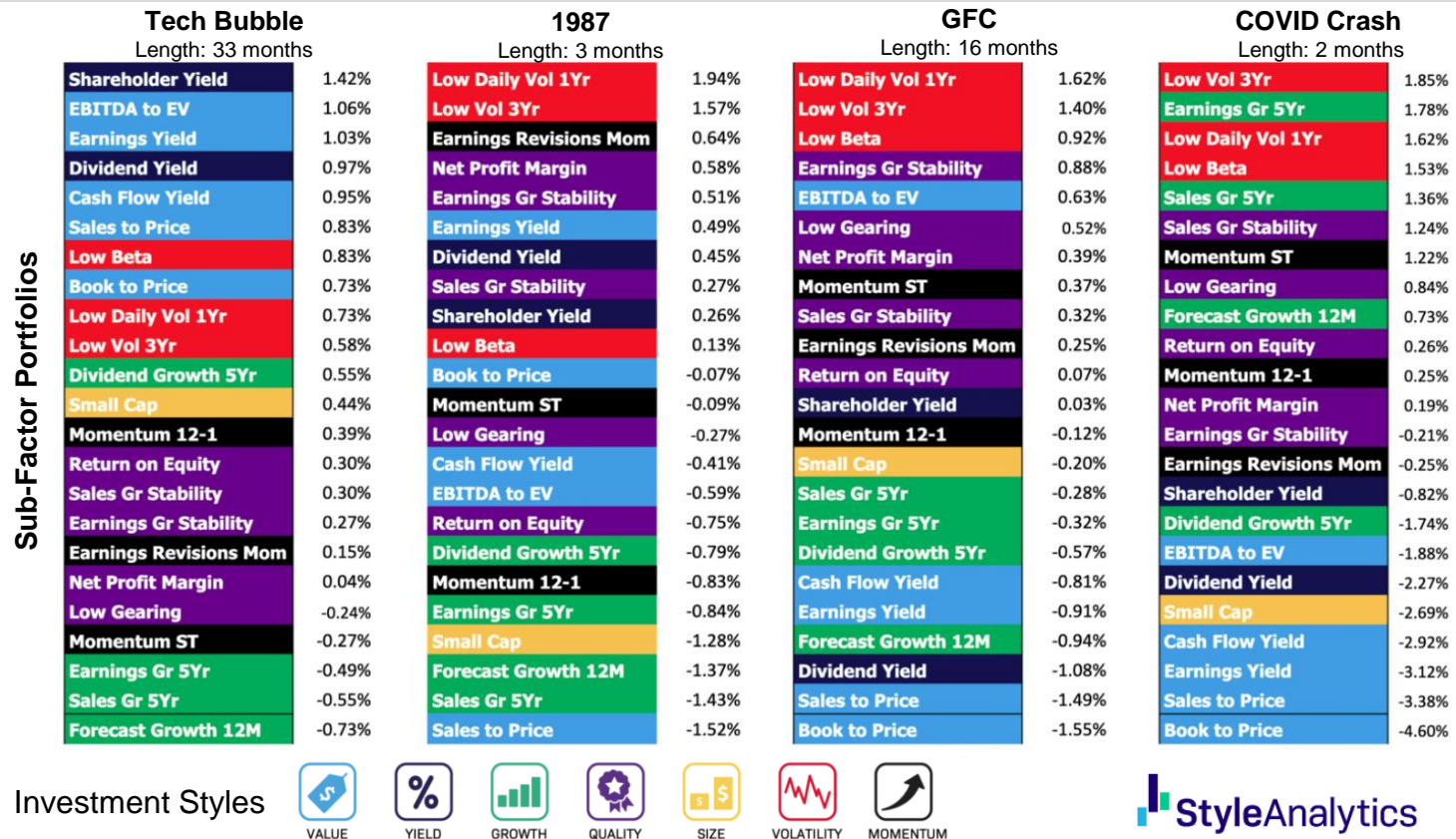
MSCI ACWI ex USA Growth	Weight (%)
Alibaba	4.4%
Tencent	3.6%
Taiwan Semiconductor	3.3%
Nestle	3.3%
Roche	2.3%
SAP	1.5%
Samsung	1.4%
ASML	1.4%
AstraZeneca	1.4%
LVMH	1.1%

MSCI ACWI ex USA Value	Weight (%)
Novartis	1.7%
Toyota	1.2%
Sanofi	1.2%
GlaxoSmithKline	1.0%
Siemens	1.0%
Total	0.9%
HSBC	0.9%
Commonwealth Bank	0.9%
Allianz	0.9%
Samsung	0.8%

U.S. Factor Performance in Downturns

Average Monthly Return Over Peak-to-Trough Periods

The universe was ranked by 23 equity sub-factors, and portfolios were constructed from the top 20% of stocks in each sub-factor. The sub-factors were organized into 7 color-coded investment styles. The 23 portfolios were rebalanced monthly and monthly returns were tracked from the universe's peak to trough during each market crash.

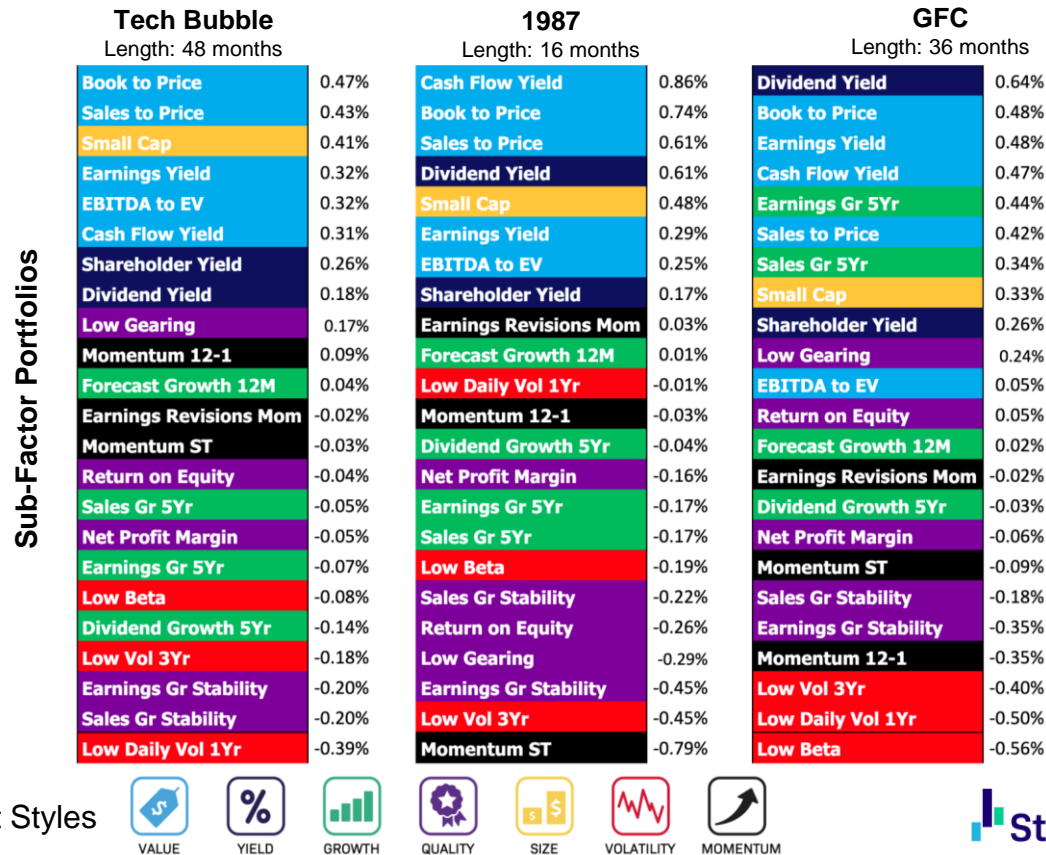


AS OF APRIL 2020 | Source: Style Analytics; Detailed in the research article *Factors in Stock Market Crashes and Portfolio Recoveries* published on April 23, 2020. Report link: <https://www.styleanalytics.com/research-articles/factors-in-portfolio-recovery-from-a-stock-market-crash/> Past performance is not a guarantee of future results. The universe is defined by Style Analytics as the top 99% of stocks, ranked by market capitalization, within each country/region. Returns are calculated based on the defined universe. EV: Enterprise value; EBITDA: Earnings before interest, taxes, and depreciation/amortization; Gr: Growth; Mom: Momentum; ST: short term; 12M: 12 months; Vol: Volatility; 12-1: total return over the past 12 months, excluding the most recent month. Factor methodology and definitions provided in the disclosures to this presentation.

U.S. Factor Performance in Recoveries

Average Monthly Return Trough-to-Prior Peak Periods

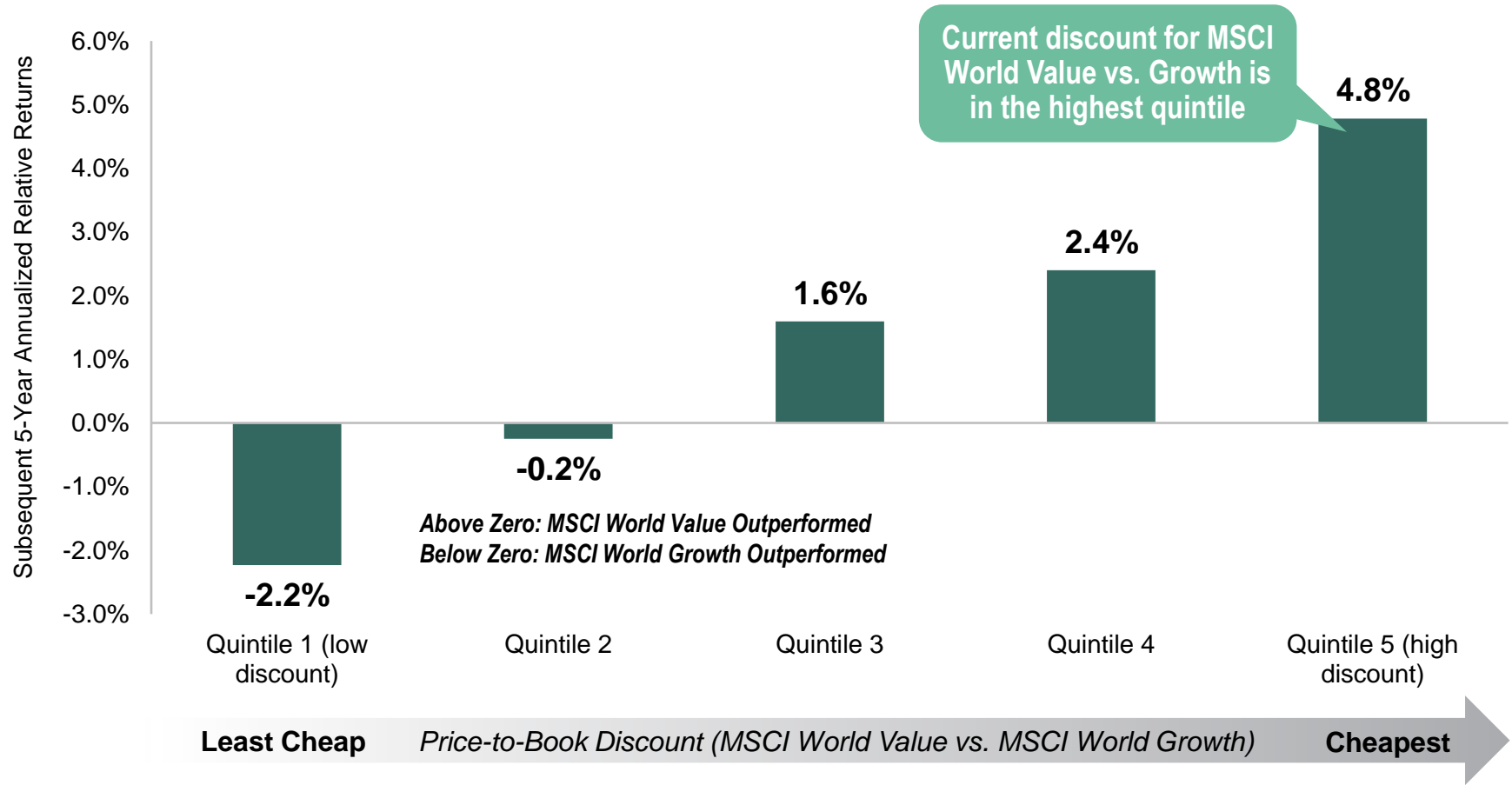
The universe was ranked by 23 equity sub-factors, and portfolios were constructed from the top 20% of stocks in each sub-factor. The sub-factors were organized into 7 color-coded investment styles. The 23 portfolios were rebalanced monthly and monthly returns were tracked from the universe's trough to prior peak during each market recovery.



AS OF APRIL 2020 | Source: Style Analytics; Detailed in the research article *Factors in Stock Market Crashes and Portfolio Recoveries* published on April 23, 2020. Report link: <https://www.styleanalytics.com/research-articles/factors-in-portfolio-recovery-from-a-stock-market-crash/> Past performance is not a guarantee of future results. The universe is defined by Style Analytics as the top 99% of stocks, ranked by market capitalization, within each country/region. Returns are calculated based on the defined universe. EV: Enterprise value; EBITDA: Earnings before interest, taxes, and depreciation/amortization; Gr: Growth; Mom: Momentum; ST: short term; 12M: 12 months; Vol: Volatility; 12-1: total return over the past 12 months, excluding the most recent month. Factor methodology and definitions provided in the disclosures to this presentation.

Strong Relative Returns When Value Is Cheap

5-Year Forward Average Relative Annualized Return (MSCI World Value relative to MSCI World Growth) by Starting Valuation Quintile



DECEMBER 31, 1974 TO JUNE 30, 2020 | Source: MSCI via FactSet. The inception date for the MSCI World Value Index and Growth Index is December 31, 1987. Performance prior to this date is the result of back-testing performed by MSCI. There may be frequent material differences between back-tested performance and actual results. Annualized returns (12/31/1974-6/30/2020): MSCI World Value 10.5%; MSCI World Growth 9.0%. The quintiles are based on the P/B discount of MSCI World Value vs MSCI World Growth by quarter since 1974. P/B discount = 1 - (MSCI World Value's Price to Book / MSCI World Growth's Price to Book). Higher discounts indicate lower P/B for MSCI World Value compared to MSCI World Growth. Past performance is not a guarantee of future results. It is not possible to invest directly in an index.

Mostly Alive - Potential Catalysts for Value

Just not yet recognized

- Price as its own catalyst – valuation spreads become so extreme that they cannot stretch any further – value is very cheap
- Economic rebound as quarantine loosens or a COVID-19 vaccine and/or treatment is discovered – value leads in recovery
- Value companies offer premium dividend income and some (slow) earnings growth potential
- Glamorous tech earnings misses – were a major contributor in the 4Q18 market pullback – potentially leading to rebalancing to value
- Interest rates: P/E relative contraction over last decade could reverse if rates rise (i.e. due to large government deficits and debt issuance)

Brandes Investment Partners, L.P.

Relevant Mandates: International Equity

Hired: 1997

Firm Information	Investment Approach	Total ARMB Mandate						
<p>Brandes Investment Partners, L.P. (Brandes) is an Investment Advisory firm that was founded in March 1974. The firm became a Delaware limited partnership in October 2004. The firm was first registered with the Securities and Exchange Commission in 1975.</p> <p>As of 06/30/2020, the firm’s total assets under management were \$18 billion.</p> <p>Key Executives: Brent Woods, CFA, Chief Executive Director Jeff Germain, CFA, Director Investments Group Amelia Morris, CFA, Director Investments Group Shingo Omura, CFA, Director Investments Group Luiz Sauerbronn, Director Investments Group Lawrence Taylor, Institutional Client Portfolio Manager</p>	<p><u>Value Approach</u> Brandes employs the Graham and Dodd investment approach introduced in the book <i>Security Analysis</i>. Brandes performs fundamental analysis to determine an estimate of a company’s “intrinsic” long-term value, by considering the company’s earnings power and cash flow generation.</p> <p>The discount of a stock’s current market price to the <i>intrinsic value</i> is what Brandes defines as “margin of safety” capturing the potential risk-adjusted capital appreciation of a security.</p> <p>Brandes expects that over time other investors will recognize each company’s true long-term business value resulting in a price move to meet or exceed Brandes’ estimate of the company’s <i>intrinsic value</i>. While it is also possible that the estimated <i>intrinsic value</i> might not be realized, consistently buying businesses with attractive <i>margins of safety</i> will enable Brandes to achieve the goal of outperforming relevant benchmarks over the long-term.</p> <p><u>Active Management</u> Portfolio weightings are a by-product of bottom-up security selection and do not attempt to match broad market indices.</p> <p>Benchmark: MSCI ACWI ex-US Value (Net)</p>	<p>Assets Under Management As of 06/30/2020:</p> <table><tr><td>Defined Benefit</td><td>\$ 255,270,747</td></tr><tr><td><u>Defined Contribution</u></td><td>\$ 92,196,177</td></tr><tr><td>Total</td><td>\$ 378,630,812</td></tr></table>	Defined Benefit	\$ 255,270,747	<u>Defined Contribution</u>	\$ 92,196,177	Total	\$ 378,630,812
Defined Benefit	\$ 255,270,747							
<u>Defined Contribution</u>	\$ 92,196,177							
Total	\$ 378,630,812							

Concerns: None

6/30/2020 Performance

	<u>Last Quarter</u>	<u>1-Year</u>	<u>3-Years Annualized</u>	<u>5-Years Annualized</u>	<u>6-Years Annualized</u>
Brandes Defined Benefit	13.17%	-13.51%	-3.94%	-1.13%	-1.25%
Brandes Defined Benefit (Net)	12.97%	-14.01%	-4.39%	-1.65%	-1.63%
Brandes Participant-Directed (Net)	12.04%	-11.28%	-3.36%	-1.11%	-1.11%
MSCI ACWI ex-US Value (Net)	12.76%	-15.26%	-3.95%	-1.25%	-2.48%
MSCI ACWI ex-US (Net)	16.12%	-4.80%	1.14%	2.26%	0.97%



INTERNATIONAL EQUITY

Alaska Retirement Management Board

Brent V. Woods, CFA

Chief Executive Officer

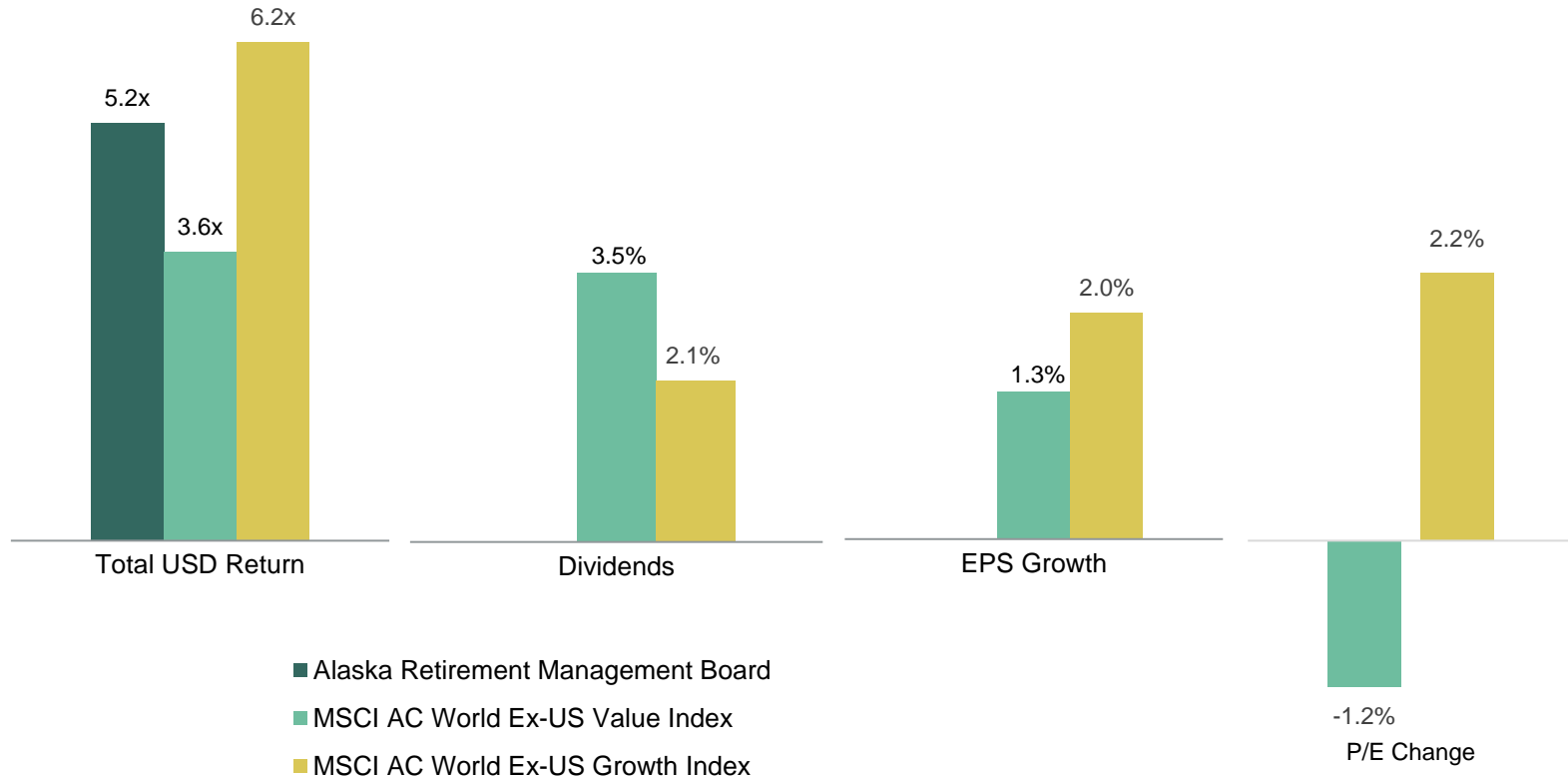
Lawrence Taylor

Institutional Client Portfolio Manager

September 17, 2020

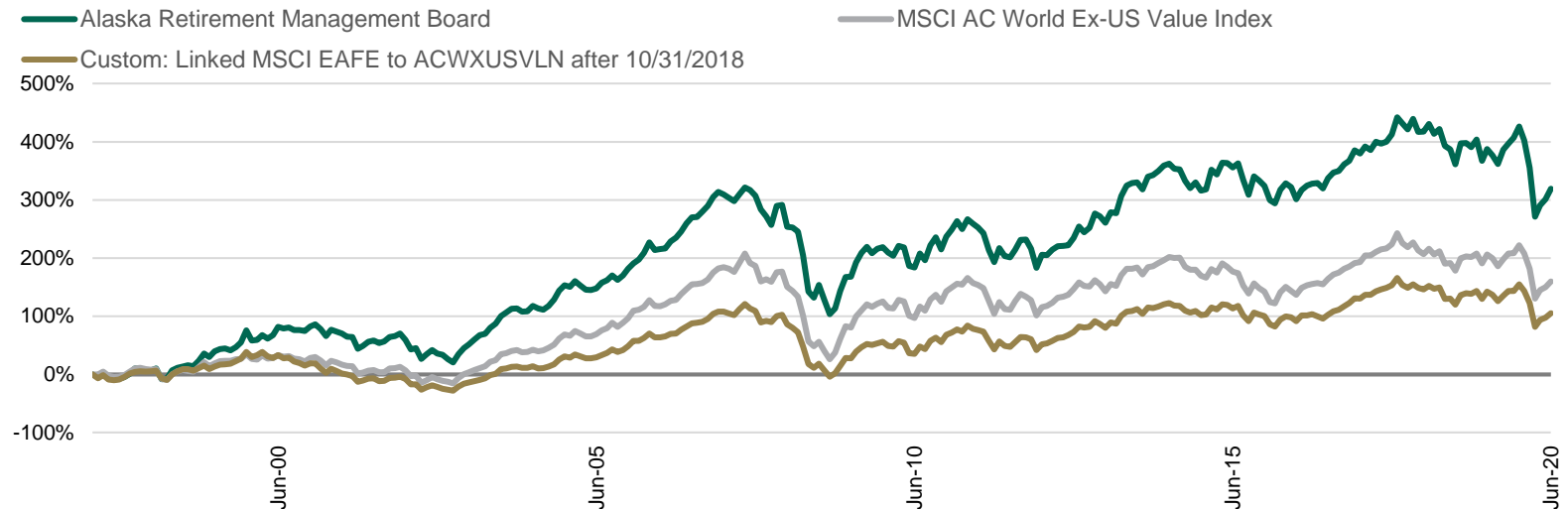
10-Year Annualized Return Decomposition

ARMB Return vs. MSCI ACWIxUSA Value vs. MSCI ACWIxUSA Growth



FOR THE 10 YEARS ENDING DECEMBER 31, 2019 | Source: MSCI via FactSet. EPS: Earnings per share. P/E: Price/Earnings. Past performance is not a guarantee of future results. It is not possible to invest directly in an index. The declaration and payment of shareholder dividends are solely at the discretion of the issuer and are subject to change at any time.

ARMB Portfolio Performance* vs. Index (%)



	Account	MSCI AC World Ex-US Value Index	Custom: Linked MSCI EAFE to ACWXUSVLN after 10/31/2018
Latest 3 Months	12.97	12.76	12.76
YTD	-20.37	-19.43	-19.43
1 Year	-14.01	-15.26	-15.26
3 Year	-4.39	-3.95	-3.78
5 Year	-1.65	-1.25	-0.76
7 Year	2.17	0.94	1.88
10 Year	3.99	2.79	4.26
Since Inception	6.46	4.25	3.19

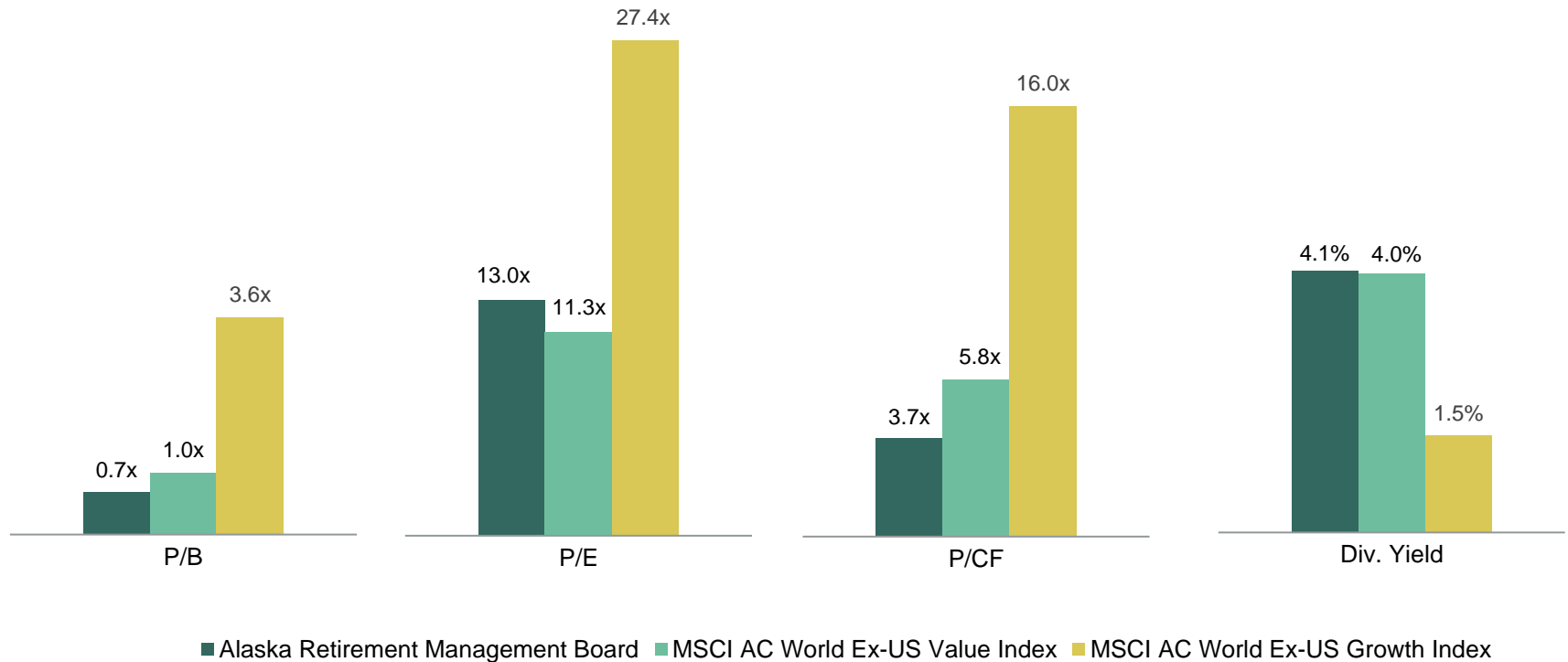
Account Value
\$255,017,350

Net Capital Contributed
\$-873,592,828

Performance Inception Date
8/11/1997

AS OF JUNE 30, 2020 | Source: Brandes, MSCI. *Cumulative total return since inception – net of management fees. Periods of greater than one year have been annualized. Returns include reinvestment of all dividends and are reduced by any applicable foreign withholding taxes, without provisions for income taxes, if any. It is not possible to invest directly in an index. Past performance is not a guarantee of future results.

Fundamental Characteristics



AS OF JUNE 30, 2020 | Source: Bloomberg, MSCI. Portfolio holdings are subject to change at any time at the discretion of the investment manager. Price/Book, Price/Earnings, Price/Cash Flow and Dividend Yield for each security provided by Bloomberg, L.P. Please note that Bloomberg does not provide negative numbers in the data feed. Index fundamentals are calculated from holdings data as provided by the relevant index or by FactSet Fundamentals, excluding negative numbers for consistency. Thus, index fundamentals calculated by Brandes may differ from those computed and published by index providers. The declaration and payment of shareholder dividends are solely at the discretion of the issuer and are subject to change at any time.

Current Environment and Outlook

- Significantly increased market volatility amid a variety of concerns primarily centered around the economic impacts of Covid-19
- Sustained value underperformance for most of the past decade which has accelerated over the last three years
- U.S. market outperforming International in 2020, and for most of the past decade, significantly driven by technology companies
- Global quantitative easing renewed, and global interest rates near record lows
- Exponential growth of passive exchange-traded funds (ETF) products, and flight from value strategies

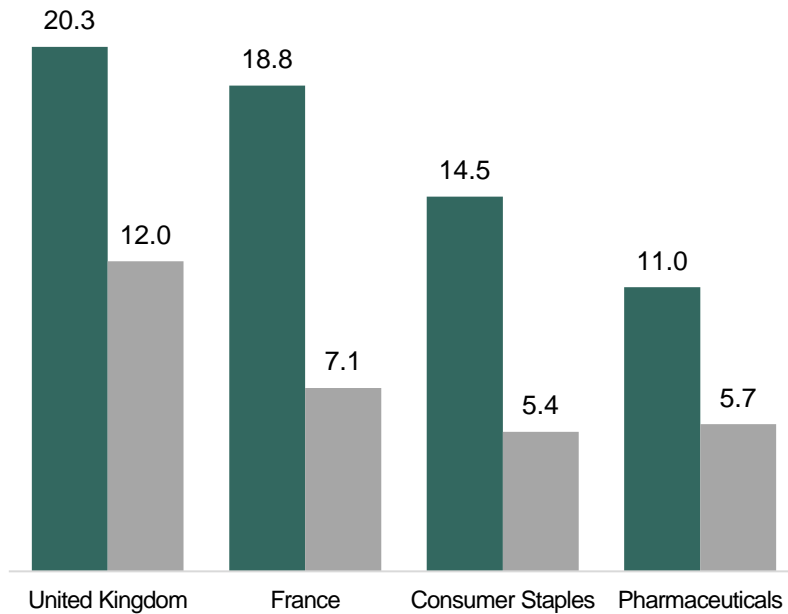
Outlook

1. Amid increased market volatility the opportunity set has improved
2. Relative valuations continue to favor international markets over the United States
3. Significant valuation dispersion between value and growth—historically, such levels portend strong subsequent returns for value

Select Differentials vs. Benchmark

Key Overweights

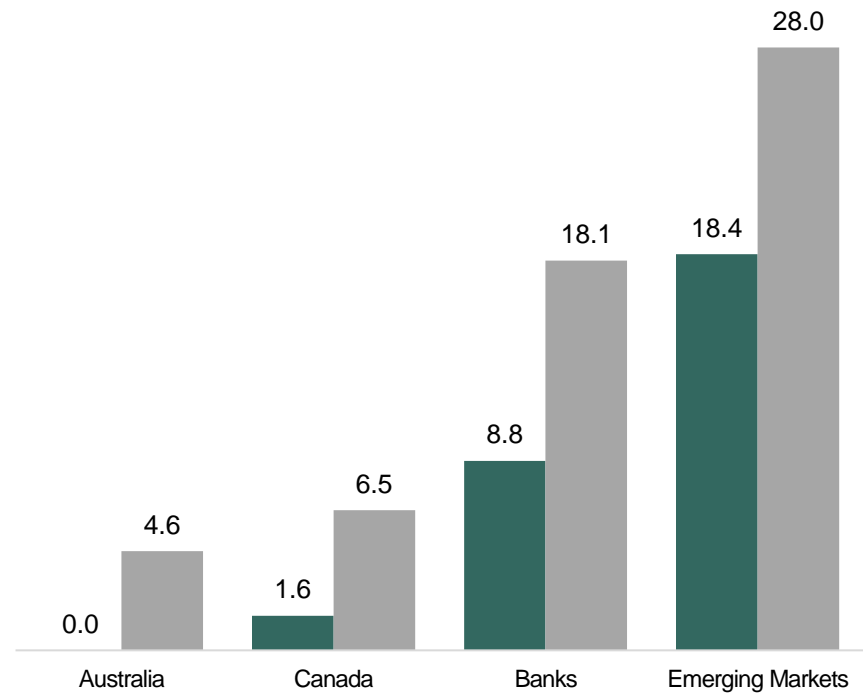
% of Portfolio



■ Alaska Retirement Management Board

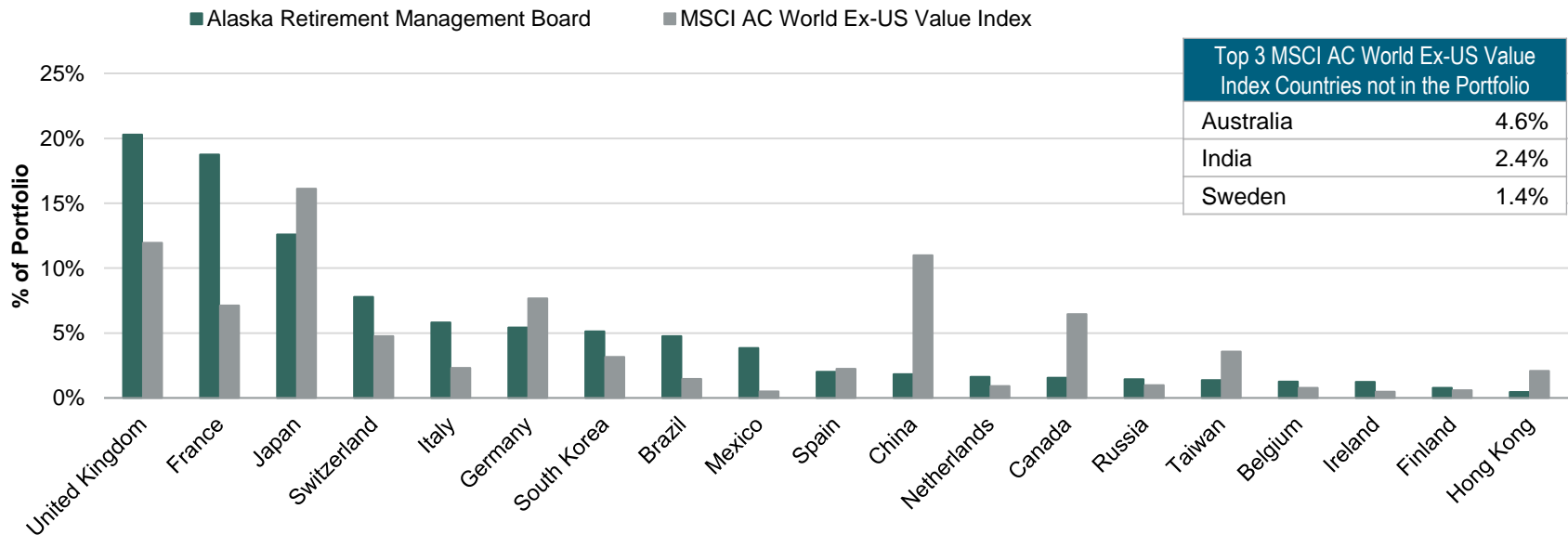
Key Underweights

% of Portfolio



■ MSCI AC World Ex-US Value Index

Country Exposure

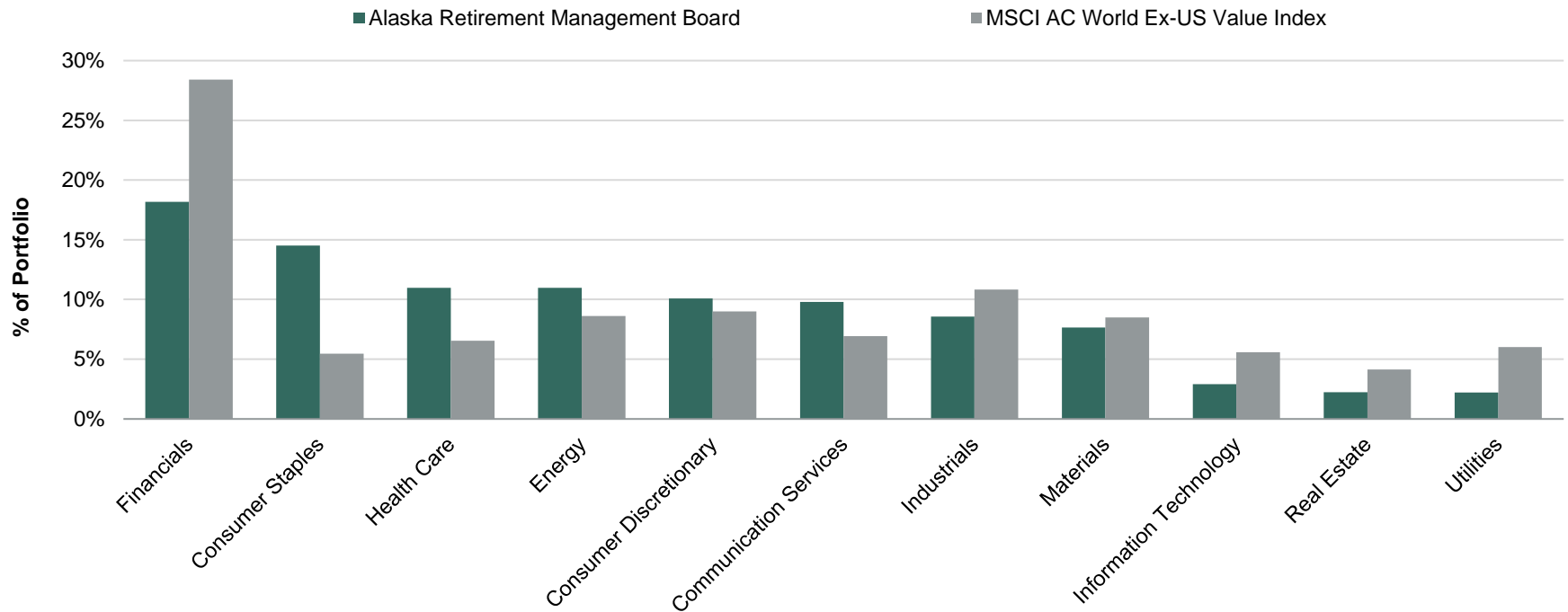


Regional Weightings	6/30/2019	6/30/2020	Change
North America	0.0%	1.6%	+1.6%
Latin America	7.5%	8.6%	+1.1%
Europe	65.6%	66.5%	+0.9%
Asia	21.9%	21.4%	-0.5%

Market Weightings	6/30/2019	6/30/2020	Change
Developed Markets	76.9%	79.6%	+2.7%
Emerging Markets	18.0%	18.4%	+0.4%
Cash	5.1%	1.9%	-3.2%

- Total number of countries in the Portfolio: 19
- No exposure to countries that represent 15.7% of the benchmark

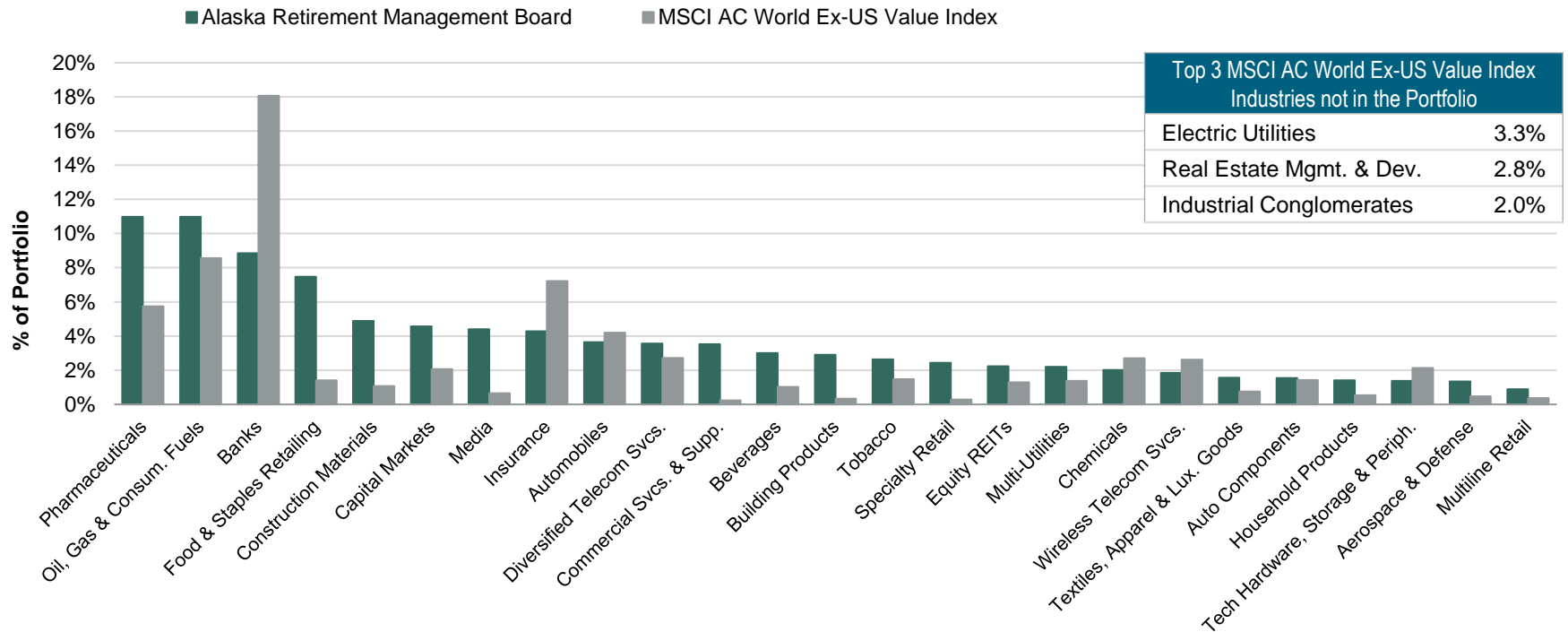
Sector Exposure



Largest Sector Weighting Increases	6/30/2019	6/30/2020	Change
Consumer Staples	9.6%	14.5%	+4.9%
Materials	5.1%	7.6%	+2.5%
Energy	9.5%	11.0%	+1.5%

Largest Sector Weighting Decreases	6/30/2019	6/30/2020	Change
Communication Services	11.9%	9.8%	-2.1%
Information Technology	4.1%	2.9%	-1.2%
Health Care	11.8%	11.0%	-0.8%

Industry Exposure (Top 25)



Largest Industry Weighting Increases	6/30/2019	6/30/2020	Change
Beverages	0.0%	3.0%	+3.0%
Construction Materials	3.4%	4.9%	+1.5%
Oil, Gas & Consum. Fuels	9.5%	11.0%	+1.5%

■ Total number of industries in the Portfolio: 30

Largest Industry Weighting Decreases	6/30/2019	6/30/2020	Change
Diversified Telecom Svcs.	4.9%	3.6%	-1.3%
Electrical Equipment	1.7%	0.8%	-0.9%
Pharmaceuticals	11.8%	11.0%	-0.8%

■ No exposure to industries that represent 23.7% of the benchmark

Top Ten Holdings

Company	%	Country	Industry
Takeda Pharmaceutical Co Ltd	3.34	Japan	Pharmaceuticals
Sanofi	3.23	France	Pharmaceuticals
GlaxoSmithKline PLC	3.13	United Kingdom	Pharmaceuticals
Cie de Saint-Gobain	2.90	France	Building Products
Carrefour SA	2.56	France	Food & Staples Retailing
BP PLC	2.50	United Kingdom	Oil, Gas & Consumable Fuels
Kingfisher PLC	2.44	United Kingdom	Specialty Retail
Credit Suisse Group AG	2.35	Switzerland	Capital Markets
Eni SpA	2.25	Italy	Oil, Gas & Consumable Fuels
Publicis Groupe SA	2.23	France	Media
Top 10 as % of Portfolio	26.93		
Total Number of Companies: 61			

GlaxoSmithKline

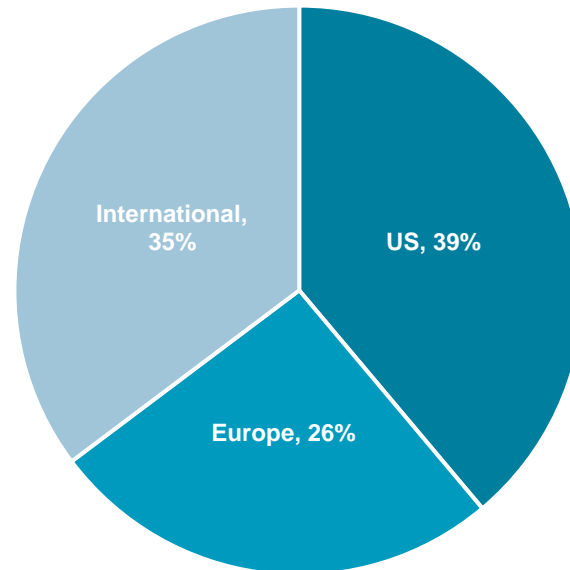
- Diversified, defensive, and cash generative portfolio of businesses
 - Revenue split between pharmaceuticals, vaccines, and consumer healthcare
 - Over 1/3rd of revenue is generated from emerging markets
- Strong market position:
 - #1 in Vaccines
 - #1 in Respiratory
 - Leader in consumer health franchises
- Market negativity around its R&D pipeline
- Valuation Summary:
 - 14x forward P/E
 - 4.4% dividend yield
 - Strong returns on capital

Company Description

One of the largest developers and manufacturers of pharmaceutical products, vaccines, over the counter medicines, and consumer health products in the world.

Initial Coverage: 2004

Revenue Exposure



- Raised capital 3 times since the 2012 Euro crisis for a total of nearly CHF 14 billion
 - Now has a strong capital position and improving profitability
- Returning excess capital to shareholders with a target cash payout ratio of 50%
- Attractive and growing fee-based private banking business
 - One of the 3 largest wealth managers in Emerging Markets
 - Strong position in Asia, a market where wealth accumulation is expected to be the strongest globally
 - Accounts for over 50% of profit before tax

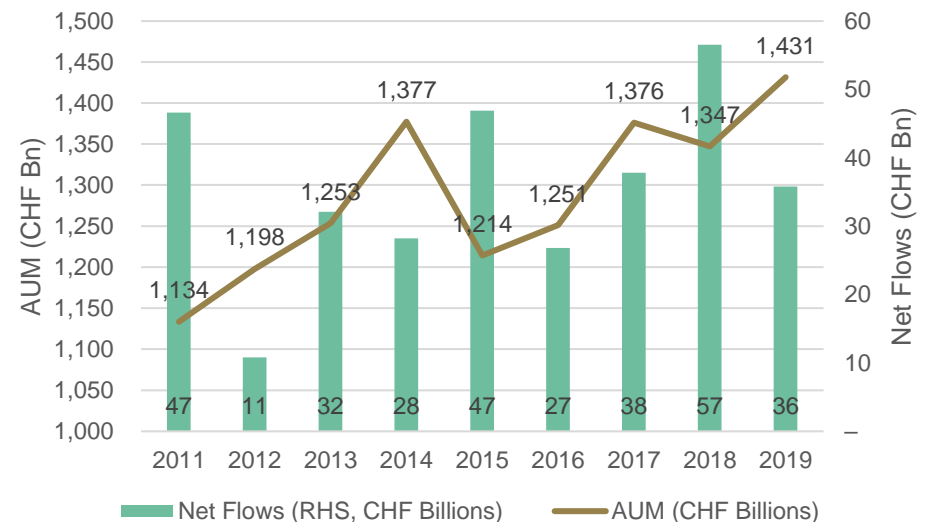
- Valuation Summary:
 - 11x Forward P/E (depressed earnings)
 - 0.8x P/Tangible Book

Company Description

One of the world's largest wealth managers with over CHF1 trillion of assets under management. Primary businesses include wealth management, asset management, investment banking, and Swiss retail and corporate banking.

Initial Coverage: 2014

AUM Growth and Net Flows



Summary of Portfolio Changes

New Positions

Quarter	Company	Country	Industry
Q2 2020	Ambev SA	Brazil	Beverages
	Anheuser-Busch InBev SA/NV	Belgium	Beverages
Q1 2020	HeidelbergCement AG	Germany	Construction Materials
	Henkel AG & Co KGaA	Germany	Household Products

Complete Sale of Positions

Quarter	Company	Country	Industry
Q2 2020	America Movil SAB de CV	Mexico	Wireless Telecom Svcs.
Q1 2020	HSBC Holdings	United Kingdom	Banks
	Mitsubishi Tanabe Pharma Corp	Japan	Pharmaceuticals
	Mobile TeleSystems PJSC	Russia	Wireless Telecom Svcs.
	Telefonica Brasil SA	Brazil	Diversified Telecom Svcs.

ARMB Key Performance Factors – 2Q20

International Equity

Positive Factors

- Holdings in the following industries:
 - Banks (BNP Paribas)
 - Construction Materials (Cemex)
 - Building Products (Compagnie de Saint-Gobain)
- Holdings in the following countries:
 - France (Sanofi)
 - United Kingdom (Kingfisher)
 - Switzerland (UBS Group)

Negative Factors

- Holdings in the following industries:
 - Food & Staples Retailing (Carrefour)
 - Aerospace & Defense (Embraer)
 - Underweight to Metals & Mining
- Holdings in the following countries:
 - Italy (Eni)
 - Russia (Surgutneftegas)
 - Lack of Holdings in Australia

SECOND QUARTER 2020 Key performance factors are relative to the index. The MSCI ACWI ex USA Value Index with gross dividends captures large and mid cap securities across developed and emerging markets excluding the United States. Attributes for value index construction are book value to price, 12-month forward earnings to price, and dividend yield. The information provided in this material should not be considered a recommendation to purchase or sell any particular security. It should not be assumed that any security transactions, holdings, or sectors discussed were or will be profitable, or that the investment recommendations or decisions we make in the future will be profitable or will equal the investment performance discussed herein. Strategies discussed herein are subject to change at any time by the investment manager in its discretion due to market conditions or opportunities.

ARMB Key Performance Factors – Trailing Twelve Months

International Equity

Positive Factors

- Holdings in the following industries:
 - Banks (HSBC Holdings)
 - Oil Gas & Consumable Fuels (Petrobras)
 - Pharmaceuticals (Mitsubishi Tanabe Pharma)
- Holdings in the following countries:
 - United Kingdom (Kingfisher)
 - France (Sanofi)
 - Canada (Cameco)

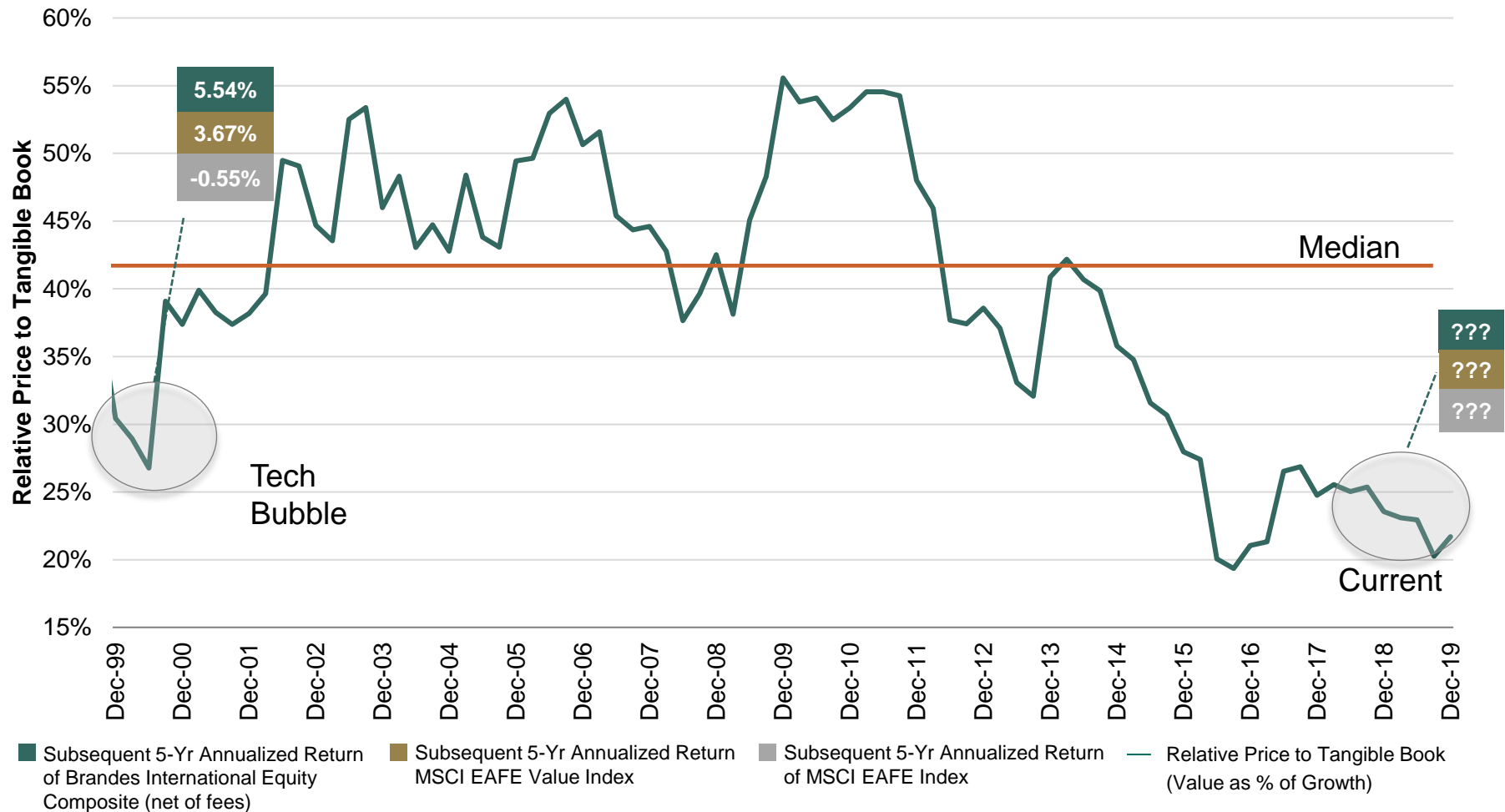
Negative Factors

- Holdings in the following industries:
 - Multiline Retail (Marks & Spencer)
 - Media (Publicis Groupe)
 - Automobiles (Renault)
- Holdings in the following countries:
 - Mexico (Fibra Uno Administracion)
 - Brazil (Embraer)
 - South Korea (Hyundai Motor Company)

TRAILING 12 MONTHS ENDED JUNE 30, 2020 | Key performance factors are relative to the index. The MSCI ACWI ex USA Value Index with gross dividends captures large and mid cap securities across developed and emerging markets excluding the United States. Attributes for value index construction are book value to price, 12-month forward earnings to price, and dividend yield. The information provided in this material should not be considered a recommendation to purchase or sell any particular security. It should not be assumed that any security transactions, holdings, or sectors discussed were or will be profitable, or that the investment recommendations or decisions we make in the future will be profitable or will equal the investment performance discussed herein. Strategies discussed herein are subject to change at any time by the investment manager in its discretion due to market conditions or opportunities.

Value vs. Growth Valuations and Returns

MSCI EAFE Value as % of MSCI EAFE Growth (Price to Tangible Book)

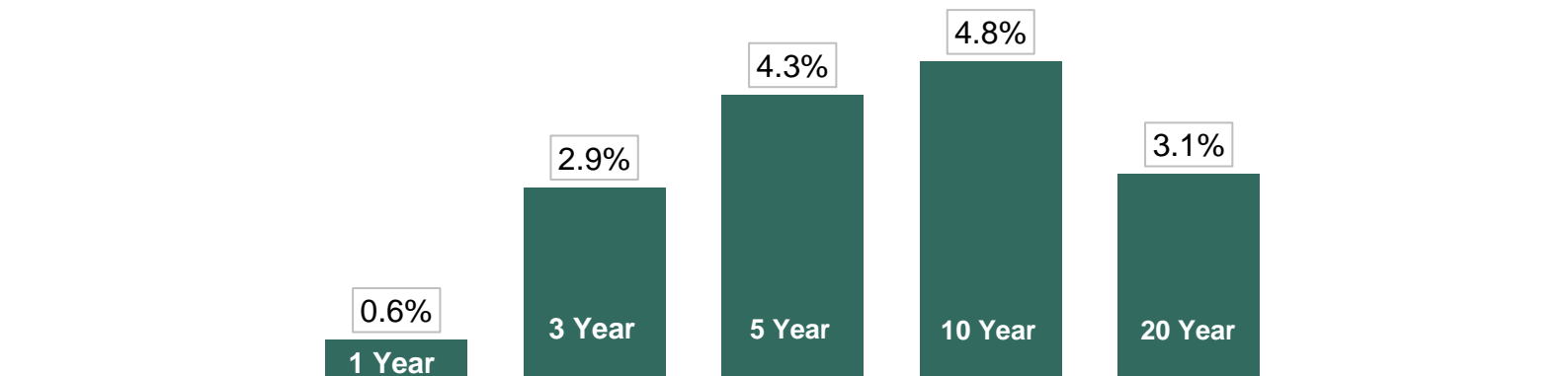


DECEMBER 31, 1999 TO DECEMBER 31, 2019; 5 YEAR RETURN DATA JUNE 30, 2000 TO JUNE 30, 2005 | Source: Brandes, Bloomberg, MSCI. Price to Tangible Book: Price per share divided by tangible equity per share. Past performance is not a guarantee of future results. It is not possible to invest directly in an index. Please see the accompanying composite performance page. The hypothetical examples are for illustrative purposes only. They do not represent the performance of any specific investments. Actual results will vary.

Brandes International Equity: Leveraged to Value

Brandes Strategy	Percentage of Time Brandes International Outperformed the Value Index <i>When Value Outperforms the Index</i> (Based on Rolling Performance Since Inception, Net)				
	1-Year	3-Year	5-Year	10-Year	20-Year
International Equity (MSCI EAFE)	56%	75%	93%	100%	100%

Median Relative Performance When Value Outperforms the Index - Brandes International vs. Value Index, Net



International Equity (vs. MSCI EAFE Value as of 9/30/1990)

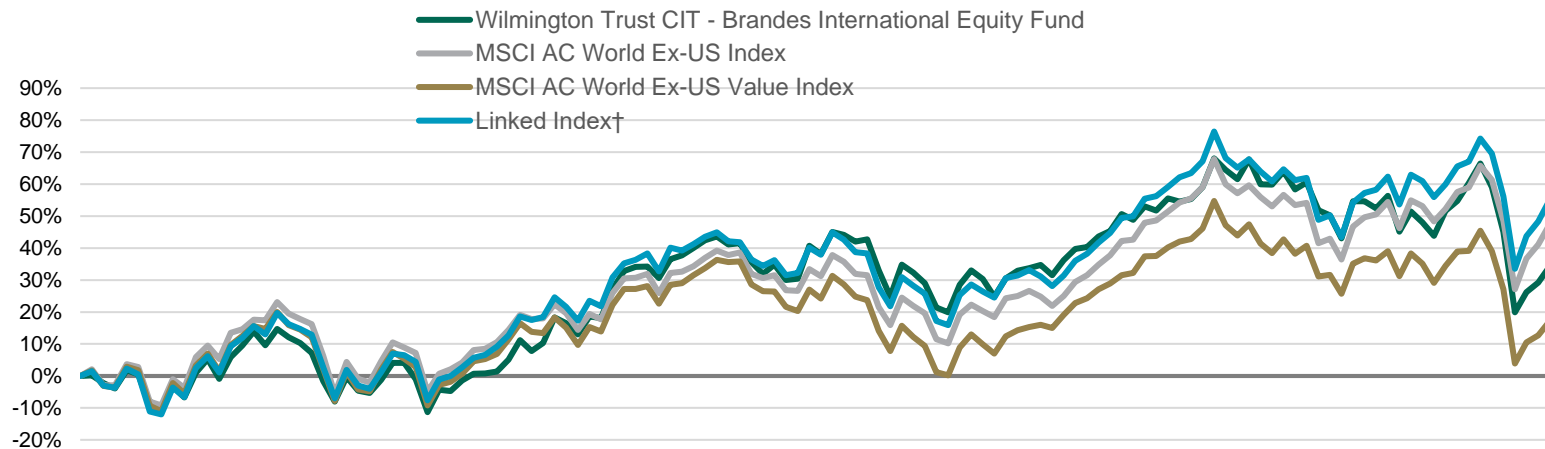
MEDIAN ROLLING RELATIVE RETURNS (VS. RELEVANT VALUE INDEX) NET OF MANAGEMENT FEES FROM STRATEGY INCEPTION TO DECEMBER 31, 2019 | Source: Brandes Investment Partners, eVestment. For each rolling period, the composite return was subtracted from the value index return and the results were ranked in descending order. Each bar represents the midpoint of all relative returns (so that half of all returns were greater than the value shown). All values for periods of one year or greater represent rolling periods measured quarterly. Rolling periods represent a series of overlapping, smaller time periods within a single, longer-term time period. For example, over a 20-year period, there is one 20-year rolling period, eleven 10-year rolling periods, sixteen 5-year rolling periods, and so forth. Please see the accompanying International Equity composite performance pages. Past performance is not a guarantee of future results. Please note that all indices are unmanaged and are not available for direct investment. Brandes International Equity performance dates to 9/30/1990, the inception of the strategy. MSCI EAFE Value Index inception 12/8/1997, performance shown prior to inception is the result of back-testing by the index provider. There may be frequent material differences between back-tested performance and actual results.



WILMINGTON TRUST CIT

Wilmington Trust CIT

Portfolio Performance* vs. Index (%)



	Account	MSCI AC World Ex-US Index	MSCI AC World Ex-US Value Index	Linked* Index
Latest 3 Months	12.04	16.12	12.76	14.88
YTD	-19.28	-11.00	-19.43	-11.34
1 Year	-11.28	-4.80	-15.26	-5.13
3 Year	-3.36	1.13	-3.95	0.81
5 Year	-1.11	2.26	-1.25	2.05
7 Year	2.50	3.71	0.94	3.93
10 Year	4.18	4.97	2.79	5.73
Since Inception	2.83	3.74	1.51	4.14

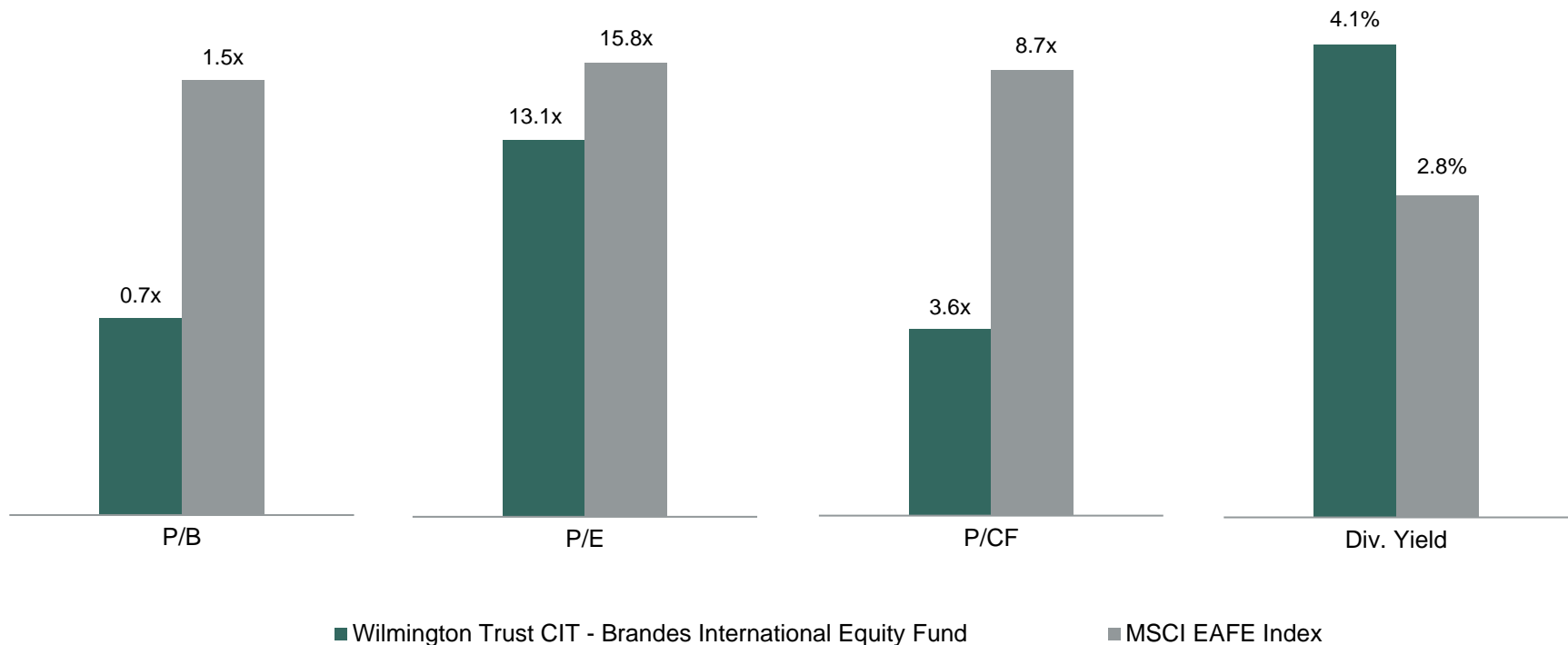
Account Value
\$92,196,177

Net Capital Contributed
\$39,174,672

Performance Inception Date
12/1/2009

AS OF JUNE 30, 2020 | Source: Brandes, MSCI. †Linked Index: MSCI EAFE (net) from inception through 3/31/15, and MSCI AC World Ex-US (net) from 4/1/15 through the present.*Cumulative total return since inception – net of management fees are displayed. All figures one year and above are annualized. All performance is historical and is not a guarantee of future results. Indices are unmanaged and are not available for direct investment. International and emerging markets investing is subject to certain risks such as currency fluctuation and social and political changes; such risks may result in greater share price volatility. Past performance is not a guarantee of future results.

Fundamental Characteristics



AS OF JUNE 30, 2020 | Source: Bloomberg, MSCI. Portfolio holdings are subject to change at any time at the discretion of the investment manager. Price/Book, Price/Earnings, Price/Cash Flow and Dividend Yield for each security provided by Bloomberg, L.P. Please note that Bloomberg does not provide negative numbers in the data feed. Index fundamentals are calculated from holdings data as provided by the relevant index or by FactSet Fundamentals, excluding negative numbers for consistency. Thus, index fundamentals calculated by Brandes may differ from those computed and published by index providers. The declaration and payment of shareholder dividends are solely at the discretion of the issuer and are subject to change at any time.

Top Ten Holdings

Company	%	Country	Industry
Takeda Pharmaceutical Co Ltd	3.33	Japan	Pharmaceuticals
Sanofi	3.26	France	Pharmaceuticals
GlaxoSmithKline PLC	3.24	United Kingdom	Pharmaceuticals
Carrefour SA	2.54	France	Food & Staples Retailing
BP PLC	2.52	United Kingdom	Oil, Gas & Consumable Fuels
Cie de Saint-Gobain	2.34	France	Building Products
Eni SpA	2.33	Italy	Oil, Gas & Consumable Fuels
Fibra Uno Administracion SA de CV	2.25	Mexico	Equity Real Estate Investment Trusts (REITs)
Credit Suisse Group AG	2.20	Switzerland	Capital Markets
Kingfisher PLC	2.18	United Kingdom	Specialty Retail
Top 10 as % of Portfolio	26.19		
Total Number of Companies: 60			

Summary of Portfolio Changes

New Positions

Quarter	Company	Country	Industry
Q2 2020	Ambev SA	Brazil	Beverages
	Anheuser-Busch InBev SA/NV	Belgium	Beverages
Q1 2020	Cameco Corp	Canada	Oil, Gas & Consumable Fuels
	HeidelbergCement AG	Germany	Construction Materials
	Henkel AG & Co KGaA	Germany	Household Products

Complete Sale of Positions

Quarter	Company	Country	Industry
Q2 2020	America Movil SAB de CV	Mexico	Wireless Telecom Svcs.
Q1 2020	HSBC Holdings PLC	United Kingdom	Banks
	Mitsubishi Tanabe Pharma Corp	Japan	Pharmaceuticals
	Mobile TeleSystems PJSC	Russia	Wireless Telecom Svcs.
	Telefonica Brasil SA	Brazil	Diversified Telecom Svcs.

WT CIT Key Performance Factors – 2Q20

International Equity

Positive Factors

- Holdings in the following industries:
 - Banks (BNP Paribas)
 - Specialty Retail (Kingfisher)
 - Construction Materials (Cemex)
 - Building Products (Compagnie de Saint-Gobain)
- Holdings in the following countries:
 - Switzerland (UBS Group)
 - France (Sanofi)
 - Finland (Nokia)

Negative Factors

- Holdings in the following industries:
 - Food & Staples Retailing (J Sainsbury)
 - Aerospace & Defense (Embraer)
 - Oil Gas & Consumable Fuels (BP)
- Holdings in the following countries:
 - Italy (Eni)
 - China (China Mobile)
 - Lack of Holdings in Australia

SECOND QUARTER 2020 | Key performance factors are relative to the index. The MSCI ACWI ex USA Index with gross dividends captures large and mid cap representation across developed and emerging markets excluding the United States. The information provided in this material should not be considered a recommendation to purchase or sell any particular security. It should not be assumed that any security transactions, holdings, or sectors discussed were or will be profitable, or that the investment recommendations or decisions we make in the future will be profitable or will equal the investment performance discussed herein. Strategies discussed herein are subject to change at any time by the investment manager in its discretion due to market conditions or opportunities.

WT CIT Key Performance Factors – Trailing Twelve Months

International Equity

Positive Factors

- Holdings in the following industries:
 - Banks
 - Beverages
 - Pharmaceuticals

- Holdings in the following countries:
 - Canada
 - Ireland
 - Lack of holdings in Australia

Negative Factors

- Holdings in the following industries:
 - Multiline Retail
 - Aerospace & Defense
 - Media

- Holdings in the following countries:
 - Mexico
 - Japan
 - Brazil

TRAILING 12 MONTHS ENDED JUNE 30, 2020 | Key performance factors are relative to the index. The MSCI ACWI ex USA Index with gross dividends captures large and mid cap representation across developed and emerging markets excluding the United States. The information provided in this material should not be considered a recommendation to purchase or sell any particular security. It should not be assumed that any security transactions, holdings, or sectors discussed were or will be profitable, or that the investment recommendations or decisions we make in the future will be profitable or will equal the investment performance discussed herein. Strategies discussed herein are subject to change at any time by the investment manager in its discretion due to market conditions or opportunities.



APPENDIX

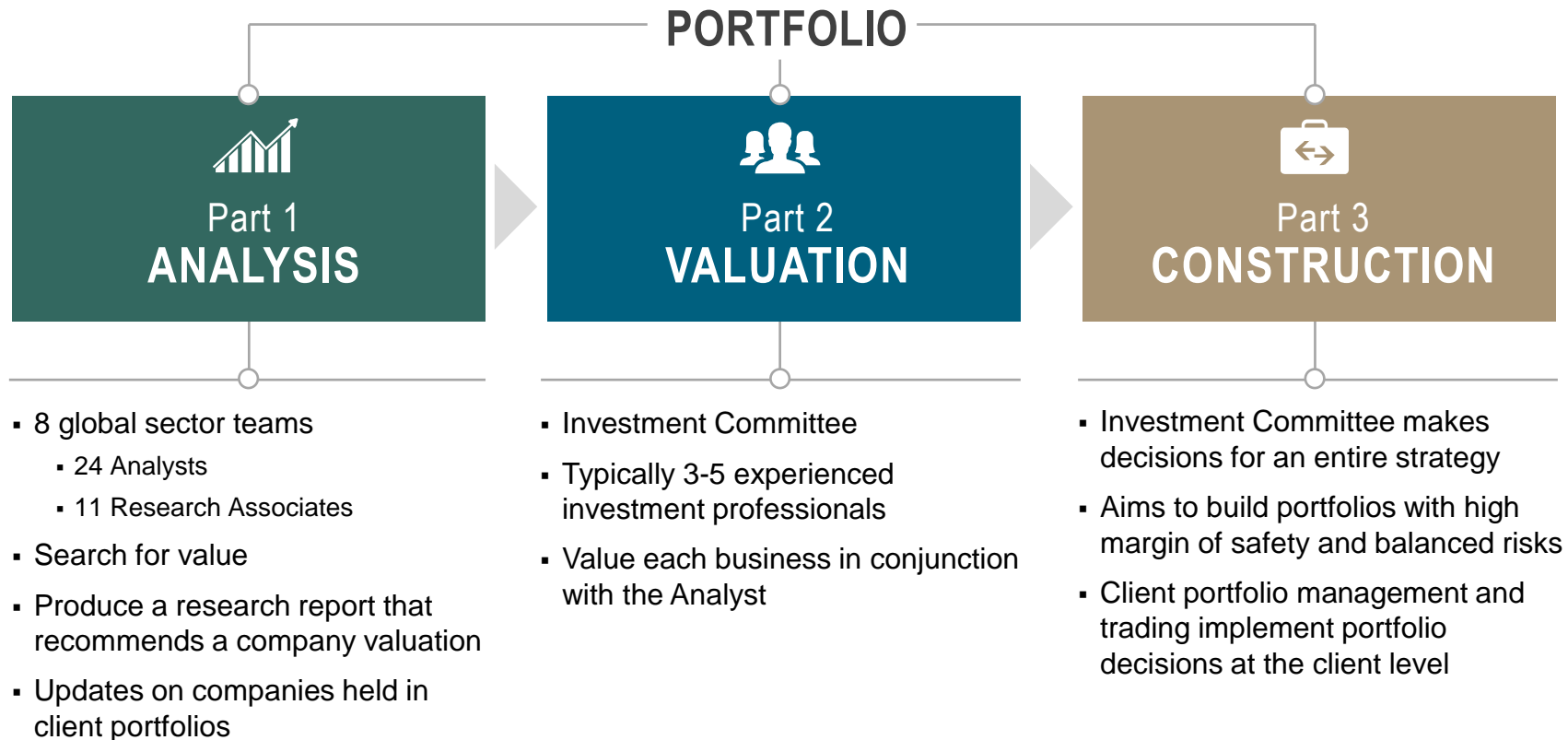
Brandes at a Glance



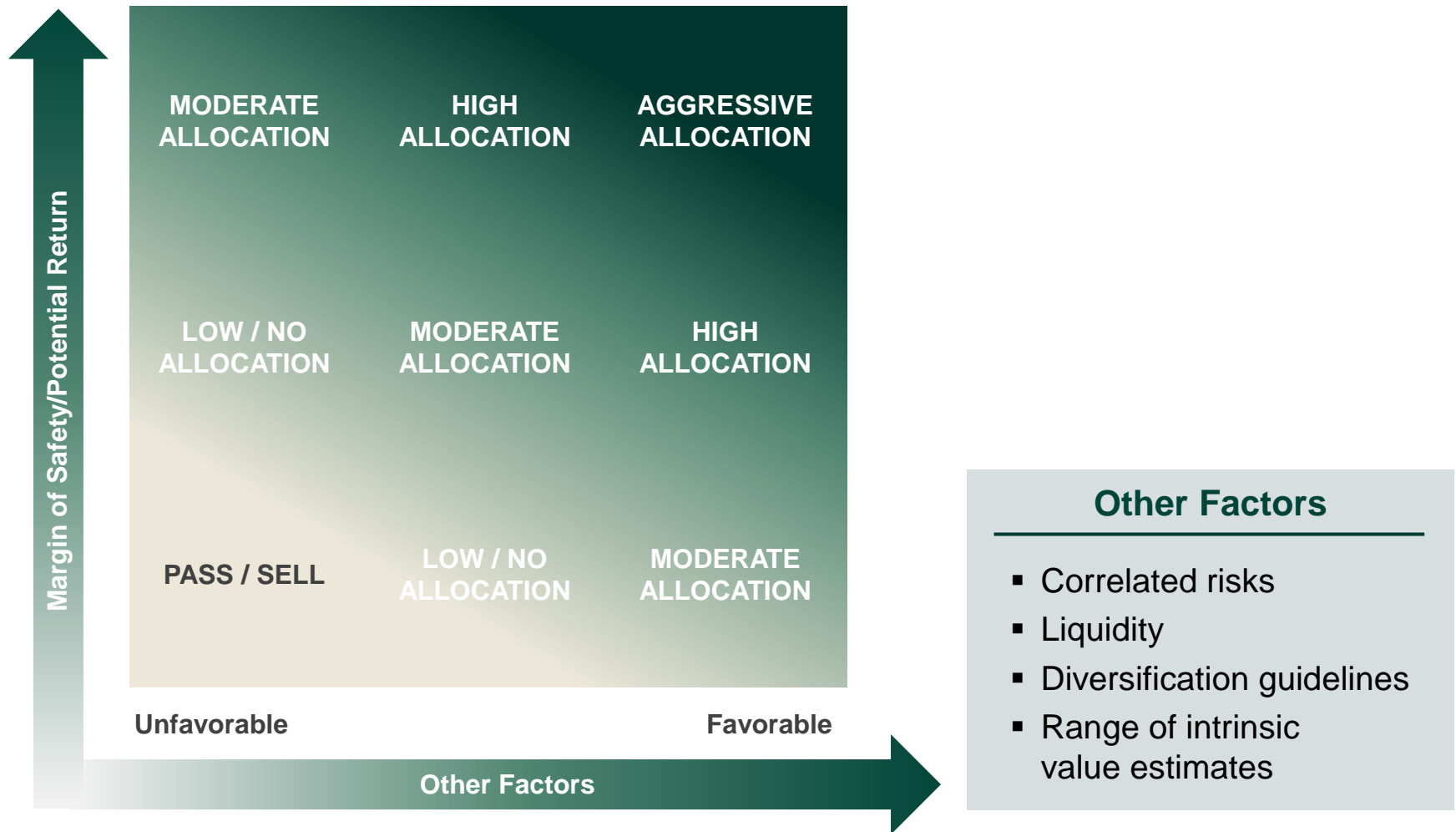
Year Firm Founded:	1974
Total Assets:	\$18.0 Billion ((\$16.2 Billion AUM / \$1.8 Billion AUA ¹)
Investment Style:	Graham & Dodd, bottom-up value
Headquarters Located:	San Diego, California
Other Offices:	Dublin, Ireland Milwaukee, Wisconsin Singapore Toronto, Canada
Total Employees Worldwide:	206
Investment Professionals:	34, including 24 security analysts
Ownership:	100% employee owned

Global	International (Non-U.S.)	United States	Fixed Income
Global Balanced	Asia Pacific (ex-Japan) Equity	U.S. Small Cap Value Equity	Core Plus Fixed Income
Global Equity	Canadian Equity	U.S. Small-Mid Cap Value Equity	Corporate Focus Fixed Income
Global Equity Income	Emerging Markets Equity	U.S. Value Equity	Enhanced Income
Global Opportunities Value	Emerging Markets Value Equity		
Global Small Cap Equity	European Equity		
Global Small-Mid Cap Equity	International Equity		
	International Small Cap Equity		
	International Small-Mid Cap Equity		
	Japan Equity		

How Brandes Works

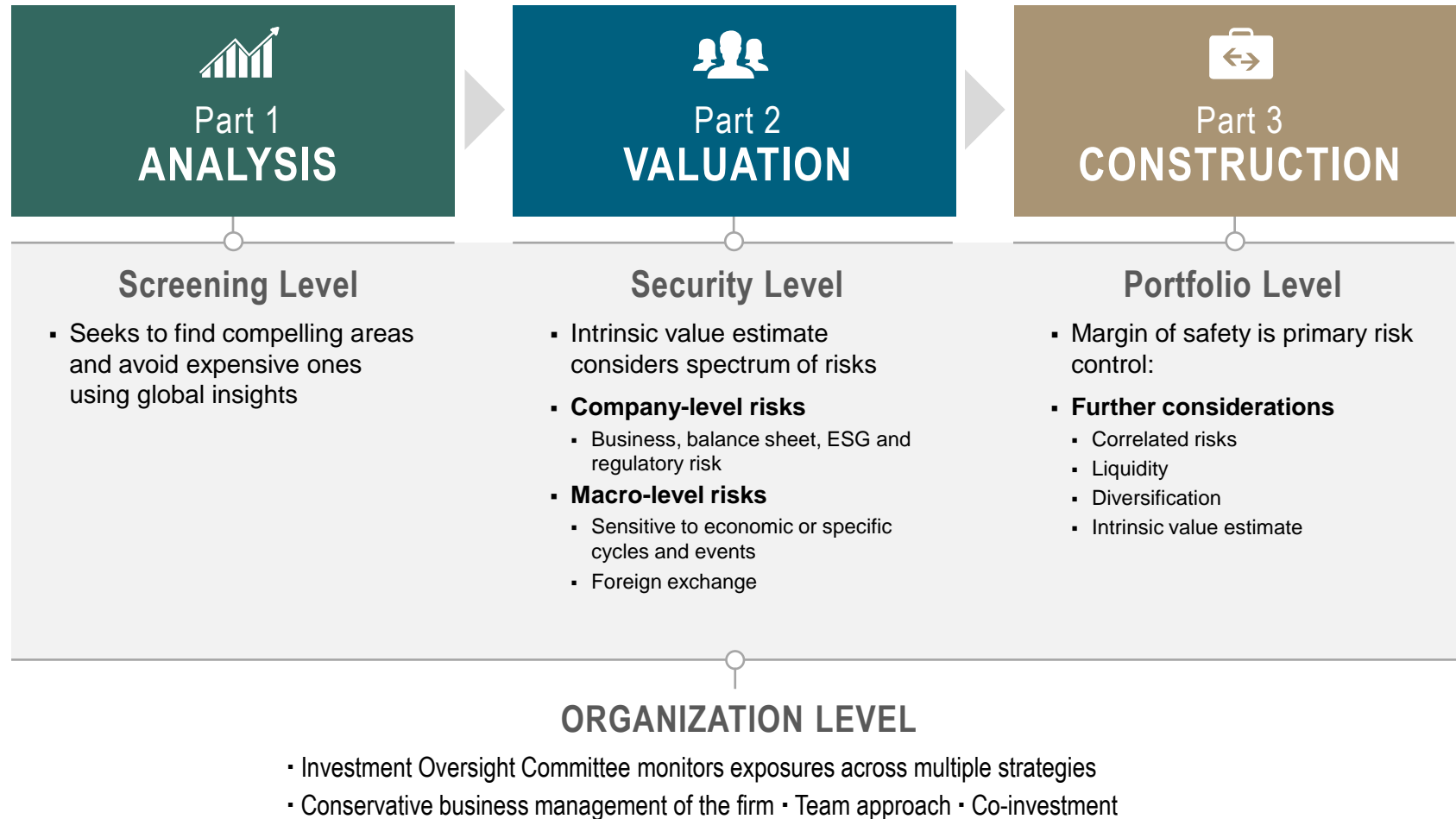


Construction — Allocation Factors



The margin of safety for any security is defined as the discount of its market price to what the firm believes is the intrinsic value of that security. Intrinsic value estimates can change over time.

Active, Fundamental Risk Management



Intrinsic value estimates can change over time. The margin of safety for any security is defined as the discount of its market price to what the firm believes is the intrinsic value of that security. Diversification does not assure a profit or protect against loss in a declining market.

International Large-Cap Investment Committee



Jeffrey Germain, CFA
Director, Investments Group
Limited partner of the firm's parent company

Experience

Current Responsibilities:

- Analyst responsibilities on the Basic Materials Research Team
- Member of the International Large-Cap Investment Committee
- Experience began in 2001
- Joined Brandes Investment Partners in 2001

Prior Career Highlights

- Financial Analyst with Harcourt
- CFO of Golf Destinations

Education

- BS in business administration with a concentration in finance from the University of North Carolina at Chapel Hill



Amelia Maccoun Morris, CFA
Director, Investments Group
Limited partner of the firm's parent company

Experience

Current Responsibilities:

- Analyst and Team Leader responsibilities on the Consumer Products Research Team
- Member of the International Large-Cap Investment Committee
- Experience began in 1986
- Joined Brandes Investment Partners in 1998

Prior Career Highlights

- Member of the Emerging Markets Investment Committee with Brandes Investment Partners
- Member of the Investment Oversight Committee with Brandes Investment Partners
- Member of the Brandes Institute Advisory Board

Education

- MBA from the University of Chicago Booth School of Business
- Degree in economics (Phi Beta Kappa and cum laude) from the University of California, Davis



Shingo Omura, CFA
Director, Investments Group
Limited partner of the firm's parent company

Experience

Current Responsibilities:

- Analyst and Team Leader responsibilities on the Health Care Research Team
- Member of the International Large-Cap Investment Committee
- Primary Product Coordinator for the Japan Equity strategy
- Member of the ESG Oversight Committee
- Experience began in 2001
- Joined Brandes Investment Partners in 2005

Prior Career Highlights

- Sell-Side Research Analyst (as a member of both the Basic Materials and Utilities Teams) in Japan

Education

- MBA from the Haas School of Business at the University of California, Berkeley
- BA in economics from Keio University in Tokyo, Japan

International Large-Cap Investment Committee



Luiz G. Sauerbronn

*Director, Investments Group
Limited partner of the firm's parent company*

Experience

Current Responsibilities:

- Analyst responsibilities on the Industrials Research Team
- Member of the International Large-Cap and Small-Cap Investment Committees
- Member of the ESG Oversight Committee
- Experience began in 1995
- Joined Brandes Investment Partners in 2001

Prior Career Highlights

- Summer Associate with J.P. Morgan
- Manager of Mergers and Acquisitions Advisory Team with Banco Brascan (part of Brookfield Asset Management) in Brazil
- Trainee with Royal Dutch Shell

Education

- MBA from the Haas School of Business at the University of California, Berkeley
- BS in economics from the Federal University of Rio de Janeiro



Brent V. Woods, CFA

*Chief Executive Officer
Limited partner of the firm's parent company*

Experience

Current Responsibilities:

- Chief Executive Officer, leading the firm's Senior Management Team, which is responsible for day-to-day operations and long-term strategic direction
- Member of the International Large-Cap Investment Committee
- Member of the Investment Oversight Committee, which monitors the processes and activities of the firm's investment committees
- Experience began in 1995
- Joined Brandes Investment Partners in 1995

Prior Career Highlights

- Managing Director, Investments Group with Brandes Investment Partners, responsible for the firm's securities research efforts and oversight of the product investment committees

Education

- JD (cum laude) from Harvard Law School
- Master's in international studies from St. John's College at Cambridge University, England
- AB (Phi Beta Kappa) from Princeton University

Your Portfolio Management Team



Lawrence Taylor
Institutional Client Portfolio Manager

Experience

Current Responsibilities:

- Work with institutional clients and their consultants to provide insights and interpretation of the firm's portfolio strategies and investment philosophy, and coordinate with Investment Committees to ensure that we accommodate client-specific guidelines and consider existing portfolio allocations when implementing investment decisions
- Experience began in 1993
- Joined Brandes Investment Partners in 1995

Prior Career Highlights

- Associate Portfolio Manager / Analyst with Brandes Investment Partners
- Investment Analyst with San Diego City Employees' Retirement System

Education

- BA from the University of California, San Diego

Institutional Portfolio Management Members

Kole Anderson, CFA - Associate Client Portfolio Manager

Dennis Benitez - Associate Client Portfolio Manager

Rhonda Berger - Director, Institutional Client Portfolio Management

Conor Burke - Associate Client Portfolio Manager

Christopher J. Garrett, CFA - Director, Institutional Group

Michael Israel, CFA - Director, Institutional Group and Global Financial Institutions

Bouramey Ko - Associate Client Portfolio Manager

Adam Mac Nulty, CFA - Institutional Client Portfolio Manager

Shingo Omura, CFA - Director, Investments Group

Marsha Otto, CFA - Director, Mutual Fund Sales and Portfolio Management

Jennifer Roman - Associate Client Portfolio Manager

Lawrence Taylor - Institutional Client Portfolio Manager

ESG Integration

“As industry-wide ESG related practices, standards, and laws change in the future, we expect that our own policies and procedures on how ESG issues are systematically incorporated into our investment process will evolve accordingly.”

-Brandes Responsible Investment Statement

Notable Updates:

- Enhancing our responsible investment policy statement
- Partnering with Sustainalytics to provide 3rd party ESG research
- Developing a tracking system for all ESG engagements
- Collaborating with the Brandes Institute on ESG related research

International Markets Are Trading at a Significant Discount to the United States

Valuation Discount Is near All-Time High Levels

MSCI World x USA Discount to MSCI USA on Price-to-Cash Earnings



Europe Valuation Relative to United States

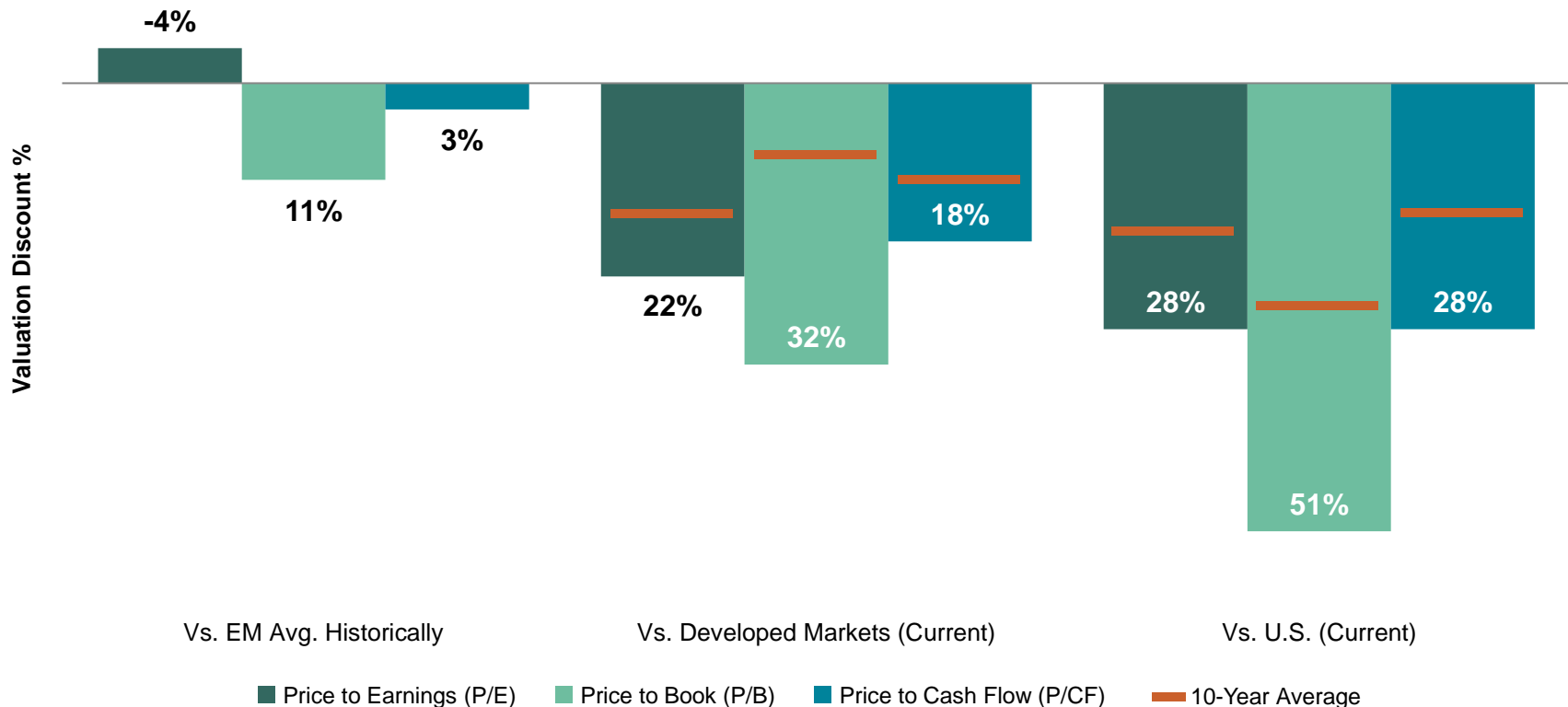
MSCI Europe Index CAPE Divided by S&P 500 Index CAPE



JUNE 30, 1986 TO JUNE 30, 2020 | Source: Morgan Stanley, MSCI, S&P, various national sources. CAPE (cyclically adjusted price/earnings) attempts to show the relationship between price and multi-year average company earnings in order to better estimate long-term earnings power. This valuation measure seeks to smooth out earnings fluctuations caused by business cycles while also reflecting the long-term effects of inflation. In this chart, a reading above 1.0 indicates that prices for Europe stocks are more expensive than U.S. stocks in relation to their underlying long-term company earnings. A reading below 1.0 indicates U.S. stocks are more expensive on a long-term price/earnings basis. Past performance is not a guarantee of future results. The MSCI Europe Index was launched on March 31, 1986.

Emerging Markets Relative Valuations

MSCI EM Index Valuations vs. History, Developed Markets and the United States



AS OF JUNE 30, 2020 | Source: MSCI; "Vs. EM Avg. Historically" is based on the monthly average of the MSCI Emerging Markets Index from December 31, 1995 to June 30, 2020; Developed Markets represented by the MSCI World Index; U.S. represented by the S&P 500 Index. Past performance is not a guarantee of future results. It is not possible to invest directly in an index. Price/Earnings average is an asset-weighted harmonic average. Price/Book average is an asset-weighted harmonic average. Price/Cash Flow average is an asset-weighted harmonic average. Price/Cash Flow is suppressed for the commercial banking, insurance, and thrift and mortgage finance industries in both the portfolio and index calculations to be consistent with MSCI's practices.

Performance Table

Period ending	MSCI EAFE Value Index	MSCI EAFE Growth Index
1978	16.3%	10.0%
1979	19.6%	14.3%
1980	21.1%	18.6%
1981	15.2%	10.5%
1982	3.4%	-0.1%
1983	8.9%	2.4%
1984	7.7%	5.5%
1985	20.5%	22.1%
1986	37.2%	37.2%
1987	53.6%	55.4%
1988	51.5%	41.6%
1989	25.3%	19.0%
1990	10.9%	1.3%
1991	1.6%	-1.4%

Period ending	MSCI EAFE Value Index	MSCI EAFE Growth Index
1992	-1.8%	-4.4%
1993	2.2%	1.6%
1994	14.8%	8.8%
1995	14.7%	10.6%
1996	13.1%	7.8%
1997	10.2%	8.2%
1998	12.2%	9.4%
1999	10.2%	7.3%
2000	9.7%	10.3%
2001	2.6%	-5.4%
2002	-3.8%	-10.1%
2003	-9.3%	-17.8%
2004	5.9%	1.7%
2005	15.1%	9.0%

Period ending	MSCI EAFE Value Index	MSCI EAFE Growth Index
2006	26.8%	21.0%
2007	23.8%	20.7%
2008	10.9%	14.7%
2009	-8.6%	-7.4%
2010	-15.1%	-11.7%
2011	-1.7%	-1.8%
2012	4.2%	7.6%
2013	9.2%	10.8%
2014	8.5%	7.7%
2015	11.8%	12.1%
2016	-0.1%	4.2%
2017	-0.6%	2.8%
2018	3.3%	6.4%
2019	8.5%	9.7%
2020	-4.4%	5.9%

3-YEAR ROLLING ANNUALIZED RETURNS AS OF JUNE 30 | Source: MSCI, FactSet. Past performance is not a guarantee of future results. It is not possible to invest directly in an index. Index performance is not indicative of strategy or fund performance.

Disclosures

Active share describes the percentage of a portfolio that is different than its benchmark index.

Book Value: Assets minus liabilities. Also known as shareholders' equity.

Enterprise Value: Market capitalization plus net debt.

EV/Sales: Enterprise value divided by sales.

EV/EBITDA: Enterprise value divided by earnings before interest, taxes, depreciation and amortization.

Forward Price/Earnings: Price per share divided by earnings per share expected over the next 12 months or next fiscal year.

Price/Book: Price per share divided by book value per share.

Price/Cash Flow: Price per share divided by cash flow per share.

Price/Earnings: Price per share divided by earnings per share.

Standard Deviation: The measure of a data set's dispersion from its mean.

Yield: Annual income from the investment (dividend, interest, etc.) divided by the current market price of the investment.

The MSCI ACWI ex USA Index with gross dividends captures large and mid cap representation across developed and emerging markets excluding the United States.

The MSCI EAFE Growth Index with gross dividends captures large and mid cap securities across developed market countries, excluding the United States and Canada, exhibiting growth style characteristics, defined using long-term forward earnings per share (EPS) growth rate, short-term forward EPS growth rate, current internal growth rate, long-term historical EPS growth trend, and long-term historical sales per share growth trend.

The MSCI EAFE Index with net dividends captures large and mid cap representation of developed market countries excluding the U.S. and Canada.

The MSCI EAFE Value Index with net dividends captures large and mid cap securities across developed market countries, excluding the United States and Canada, exhibiting value style characteristics, defined using book value to price, 12-month forward earnings to price, and dividend yield. The Index was launched on Dec 08, 1997. Data prior to the launch date is back-tested data (i.e. calculations of how the index might have performed over that time period had the index existed). There are frequently material differences between back-tested performance and actual results.

The MSCI Emerging Markets Index with net dividends captures large and mid cap representation of emerging market countries. Data prior to 2001 is gross dividend and linked to the net dividend returns.

The MSCI Emerging Markets Index with gross dividends captures large and mid cap representation of emerging market countries.

The MSCI Emerging Markets Value Index with gross dividends captures large and mid cap securities exhibiting value style characteristics, defined using book value to price, 12-month forward earnings to price, and dividend yield.

The MSCI Emerging Markets Growth Index with gross dividends captures large and mid cap securities exhibiting growth style characteristics, defined using long-term forward earnings per share (EPS) growth rate, short-term forward EPS growth rate, current internal growth rate, long-term historical EPS growth trend, and long-term historical sales per share growth trend.

The S&P 500 Index with gross dividends measures equity performance of 500 of the top companies in leading industries of the U.S. economy.

The MSCI Japan Index with net dividends is designed to measure the performance of large and mid cap segments of the Japan market.

The MSCI Europe Index with net dividends captures large and mid cap representation of developed market countries in Europe.

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International and emerging markets investing is subject to certain risks such as currency fluctuation and social and political changes, differences in financial reporting standards and less stringent regulation of securities markets which may result in greater share price volatility; such risks are increased when investing in emerging markets. Additional risks associated with emerging markets investing include smaller-sized markets, liquidity risks, and less established legal, political, social, and business systems to support securities markets. Some emerging markets countries may have fixed or managed currencies that are not free-floating against the U.S. dollar. Certain of these currencies have experienced, and may experience in the future, substantial fluctuations or a steady devaluation relative to the U.S. dollar. Frontier markets are less advanced capital markets from the developing world. They are countries with investable stock markets that are less established than those in emerging markets.

Past performance is not a guarantee of future results. The performance results presented were achieved in particular market conditions which may not be repeated. Moreover, the current market volatility and uncertain regulatory environment may have a negative impact on future performance.

The declaration and payment of shareholder dividends are solely at the discretion of the issuer and are subject to change at any time.

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UBS Realty Investors, LLC

Mandate: Core Real Estate Separate Account

Hired: 1997

Firm Information	Investment Approach	Total ARMB Mandate
<p>UBS Global Asset Management, Global Real Estate - US provides a comprehensive range of real estate investment advisory services in a variety of direct investment structures and commingled vehicles. The firm operates through its primary legal entity, UBS Realty Investors LLC (UBS Realty) and is headquartered in Hartford, CT.</p> <p>UBS Realty Investors, LLC is an indirect wholly owned subsidiary of UBS AG. UBS AG is a pre-eminent global financial services firm, with stock registered on both the New York and Zurich stock exchanges.</p> <p>As of 6/30/20, the firm's total assets under management were \$27.1 billion.</p> <p>Key Executives: <i>Jeff Maguire</i>, Senior Portfolio Manager <i>Peter Gilbertie</i>, Portfolio Manager</p>	<p>UBS Realty takes a team-oriented approach in which portfolio managers are responsible for the execution of the portfolio strategy within the investment guidelines for the portfolio and the performance of their respective portfolios. The acquisition process utilizes a "top down" and "bottom up" approach. The Real Estate Research - US team identifies markets that are expected, from a macroeconomic perspective, to provide attractive risk/reward pricing. With this direction from research, UBS Realty's investment acquisition professionals search for specific real estate assets that meet the portfolio's investment criteria.</p> <p>Benchmark: NCREIF Property Index</p>	<p>Assets Under Management: 06/30/20: \$627,874,548</p>

Concerns: None

6/30/2020 Performance

	<u>Last Quarter</u>	<u>1-Year</u>	<u>3-Years Annualized</u>	<u>5-Years Annualized</u>	<u>6-Years Annualized</u>	<u>20 ½ - Years Annualized</u>
Manager (gross)	-.23%	6.72%	7.57%	9.71%	11.22%	9.82%
Fee	-.11%	.47%	.50%	.50%	.53%	.67%
Manager (net)	-.34%	6.25%	7.07%	9.21%	10.69%	9.15%
Benchmark	-.99%	2.69%	5.44%	6.77%	7.78%	8.49%



Real Estate US

Alaska Retirement Management Board
Board Presentation

UBS Realty/ARMB Separate Account

September 17, 2020



Table of contents

Section 1	ARMB Separate Account	2
Section 2	Property photos, biographies and exhibits	14

Section 1

ARMB Separate Account

UBS Realty Investors and ARMB history

1978	Began managing real estate assets for pension funds
1980	ARMB invested USD 15 million in Trumbull Property Fund (TPF, then called RESA)
1982	Began managing institutional client separate accounts
1984	Aetna Realty Investors, Inc. (ARI) incorporated
1996	ARI was sold by Aetna to management and named Allegis Realty Investors LLC
1997	ARMB Separate Account mandate, initial allocation of USD 100 million increased to USD 305 million by 2001
1999	Allegis acquired by UBS Global Asset Management and named UBS Realty Investors LLC
2003	Takeover of PMRealty Separate Account, three assets incorporated into ARMB Separate Account (Westford Valley Marketplace, Winston Park Shopping Center and Winton Industrial Park)
2005	ARMB Farmland Separate Account mandate, initial allocation of USD 100 million increased; investment increased to USD 601 million by 2020
2014	Takeover of Cornerstone Separate Account asset (330 North Brand Boulevard), increasing allocation to ARMB Separate Account to USD 382 million
2017	35 th Anniversary of UBS Realty managing separate accounts
2020	Takeover of LaSalle Separate Account asset (Virginia Square), increasing allocation to ARMB Separate Account to USD 448 million
2020	ARMB Separate Account produces an 8.91% annualized <i>net</i> total return since inception

Notes: Returns are net of fees as of June 30, 2020.

ARMB Separate Account - summary

June 30, 2020

First investment:	May 29, 1998
Account allocation:	\$448.4 million
Number of investments:	12
Total real estate assets:	\$627.4 million
Average property value:	\$52.3 million



Westford Valley Marketplace
Westford, MA



Springbrook Apartments
Renton, WA



Memphis Industrial Park
Memphis, TN

Notes: Returns in this report for the UBS Realty/ARMB Separate Account ("ARMB Separate Account") include three former PMRealty assets for period beginning October 1, 2003, the former Cornerstone asset for periods beginning October 1, 2014 and the former LaSalle asset for periods beginning January 1, 2020.

ARMB Separate Account - performance

As of June 30, 2020

	Quarter ending 6-30-20	One year ending	Five years ending	Since Inception
Net investment income (%)	1.04	4.79	4.79	6.66
Net realized/unrealized gain (loss) (%)	(1.26)	1.86	4.36	2.78
Total(%)	(0.23)	6.72	9.30	9.58
Total, net of management fee (%)	(0.34)	6.24	8.79	8.91
CPI (%)	(0.12)	0.65	1.72	2.10
Net Real Return (%)	(0.22)	5.59	7.07	6.81



Winton Industrial
Hayward, CA



Two Maroon Circle
Englewood, CO

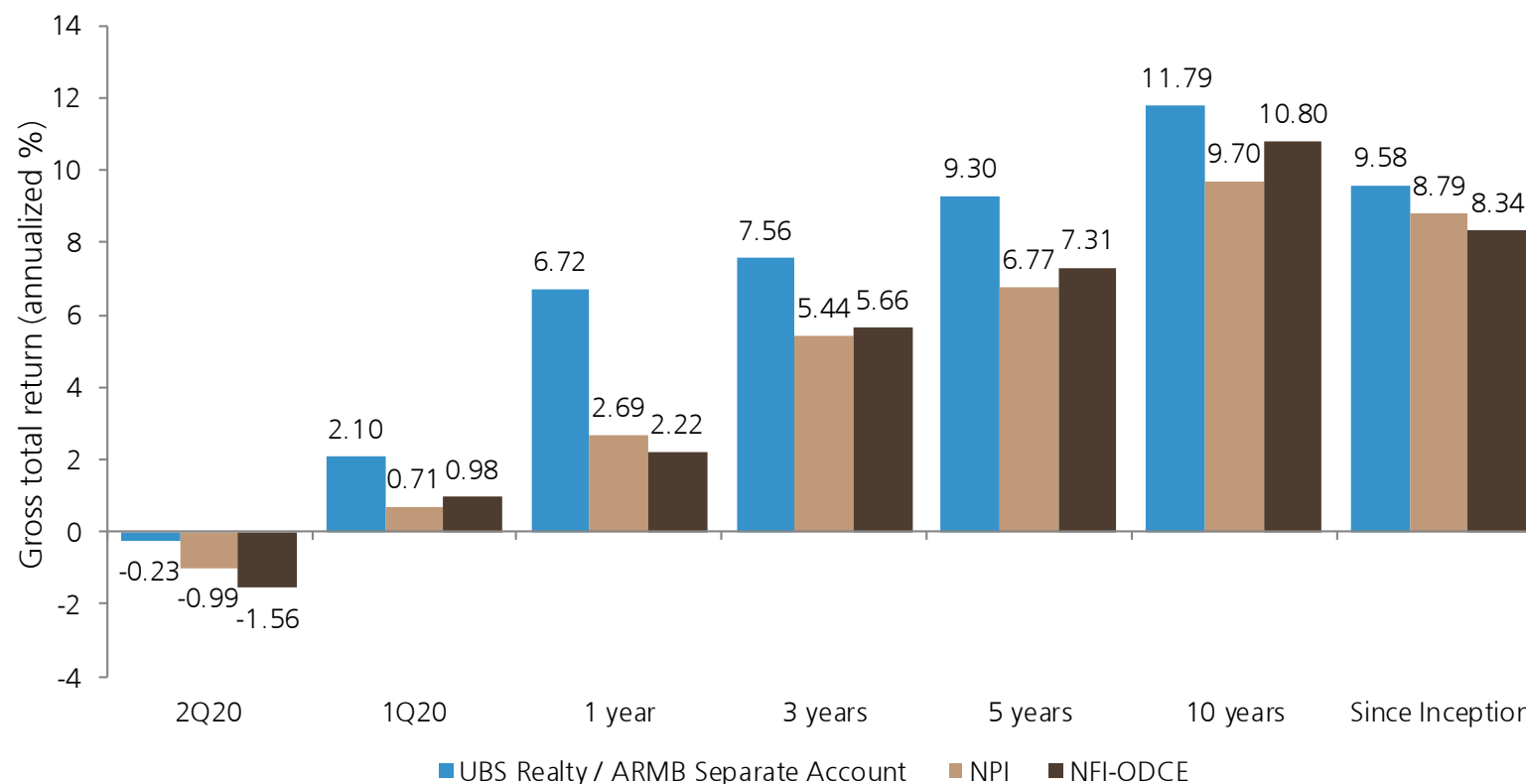


Remington at Lone Tree
Lone Tree, CO

Notes: Rates of return are dollar-weighted and time-weighted, include fund level cash and include reinvestment of income. Past performance is not indicative of future results and the possibility of loss does exist. Inception date is May 29, 1998.

ARMB Separate Account - NPI and NFI-ODCE Index

Long term outperformance

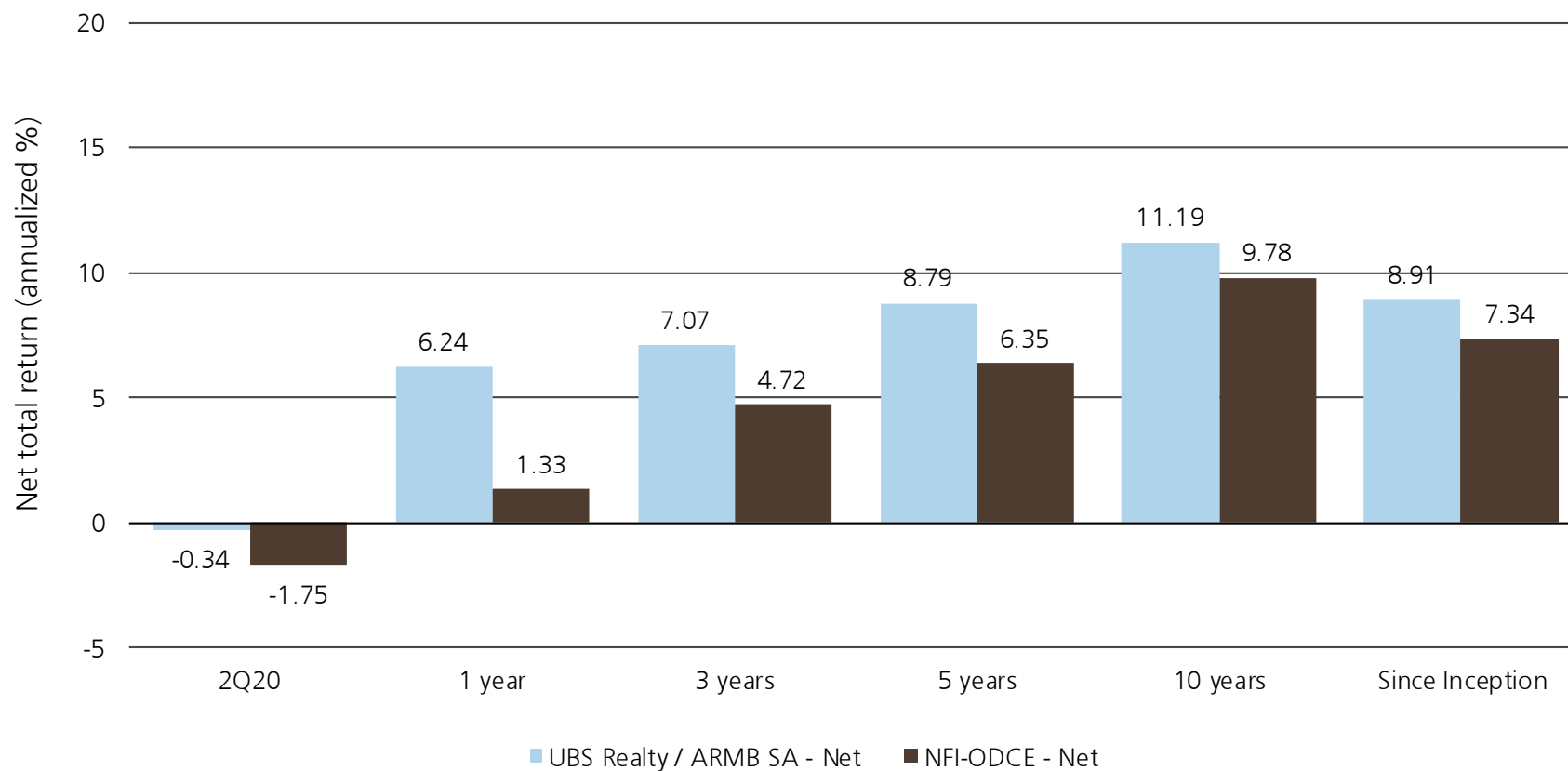


- ARMB Separate Account has outperformed both NPI and NFI-ODCE as shown above.

Notes: ARMB Separate Account total returns are before management fees. ARMB Separate Account total returns for the quarter, prior quarter, one-, three-, five-, 10-year and since inception periods after the deduction of management fees through 6/30/20 were (0.34)%, 1.66%, 6.24%, 7.07%, 8.79%, 11.18% and 8.91%, respectively. Additional information on fees is available upon request. Please see Required Notes page for description of NPI and NFI-ODCE ("ODCE") indices. Past performance is not indicative of future results and the possibility of loss does exist. Data is as of June 30, 2020.

ARMB Separate Account – Net Returns

Long term outperformance on a net of fees basis

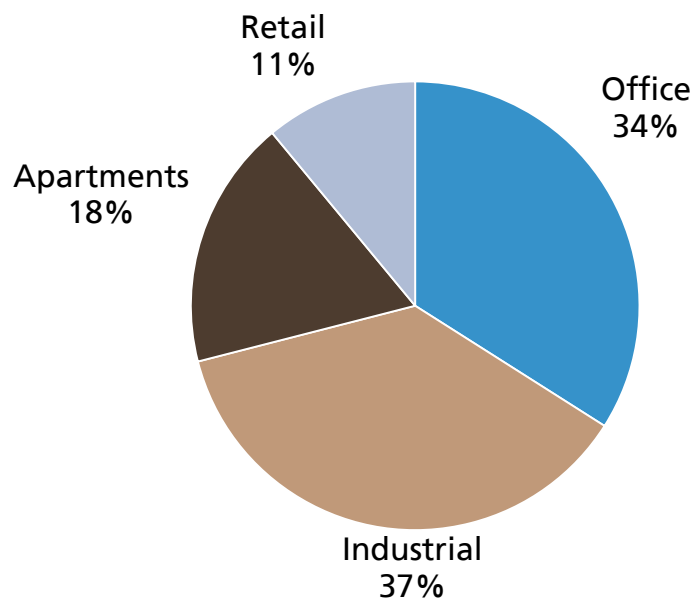


Notes: Please see Required Notes page for description of NPI and NFI-ODCE indices. Past performance is not indicative of future results and the possibility of loss does exist. Data is as of June 30, 2020.

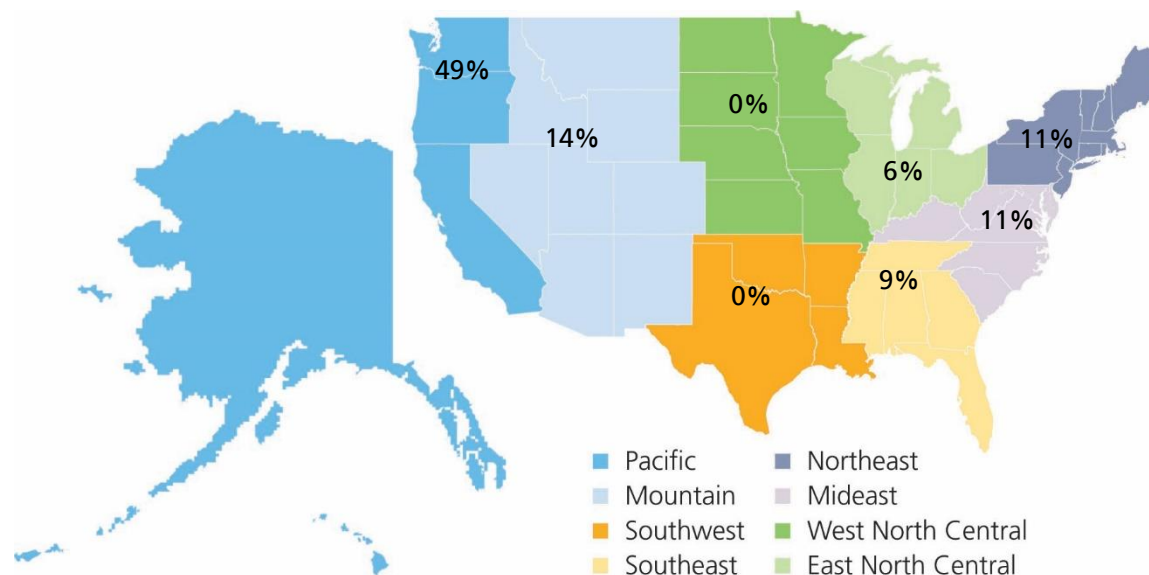
ARMB Separate Account – portfolio distribution

As of June 30, 2020

Portfolio distribution by property type



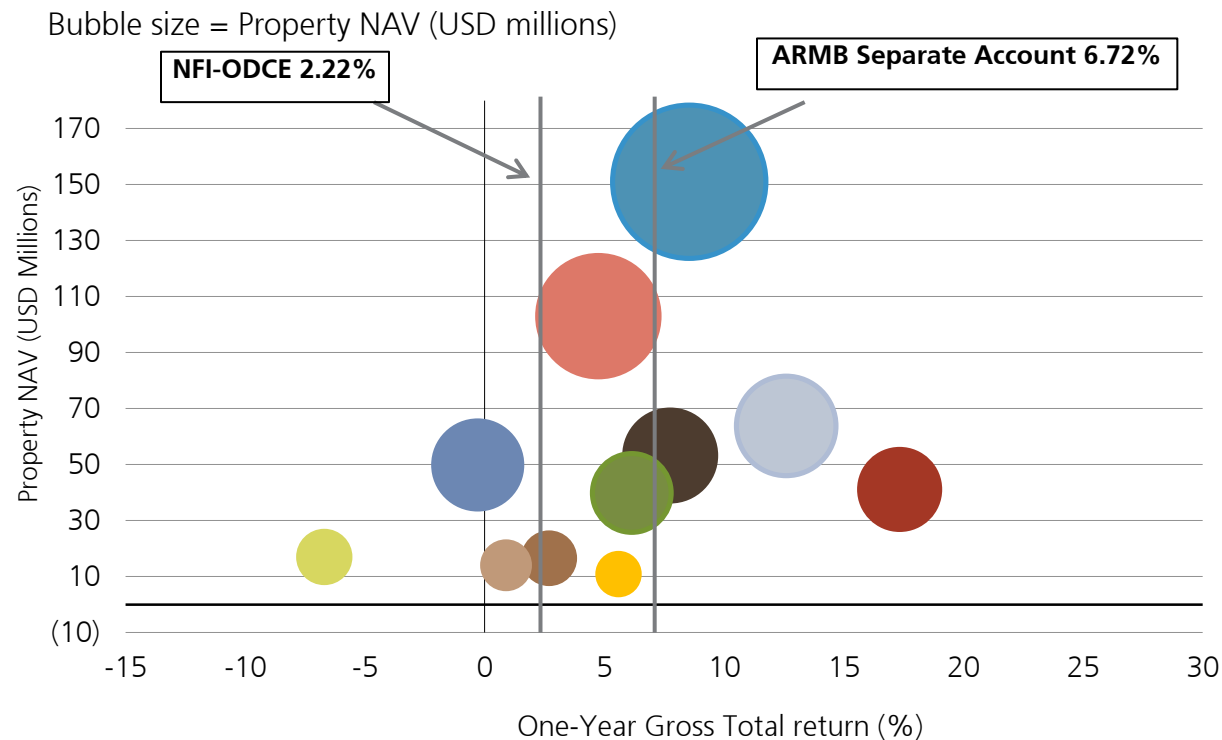
Portfolio distribution by geographic region



Notes: Percentages may not sum due to rounding. Geographic regions as defined by NCREIF. Property type and geographic distributions weighted by market value.

One-year gross total returns

As of June 30, 2020

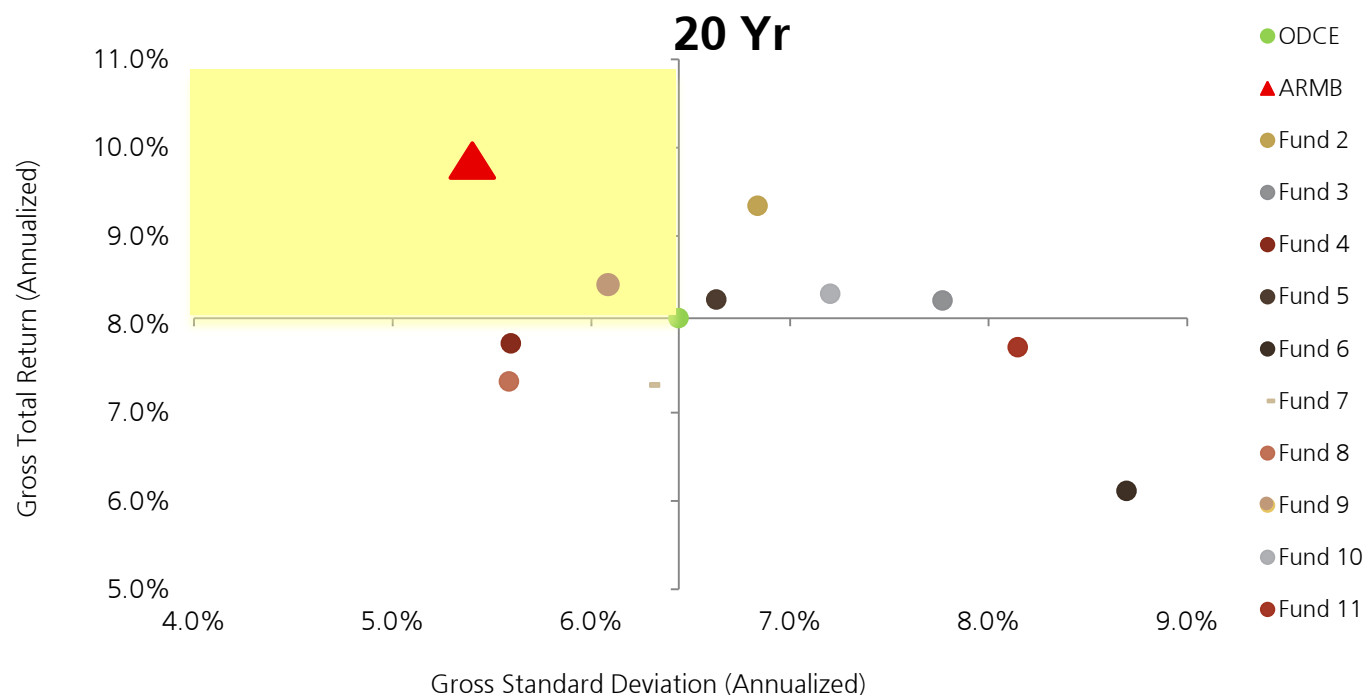


- Winton Industrial
- Remington at Lone Tree
- 400 Crown Colony
- One Maroon
- Westford Valley
- West 55th Street
- Winston Park
- 330 North Brand Boulevard
- Springbrook
- Memphis Industrial
- Two Maroon

Notes: Please see Required Notes page for description of NFI-ODCE Index. One-year performance not available for Virginia Square. Past performance is not indicative of future results and the possibility of loss does exist. Data as of June 30, 2020.

ARMB Separate Account Risk-return profile

Superior returns with lower risk over a long time period



UBS Realty/ARMB Separate Account Risk Characteristics

Measure	Definition	20 year value
Sharpe Ratio	Measures return per unit of risk	1.57
Std. Deviation	Annualized standard deviation measures the variability of fund returns	5.22

Source: UBS Asset Management and NCREIF

Notes: Data provided through competitor-shared data exchange universe available consistently throughout funds in the NFI-ODCE each time period. Total returns are annualized and are reported gross of management fees. Please see Required Notes pages for more information. Past performance is not indicative of future results and the possibility of loss does exist. Data is as of March 31, 2020.

ARMB Separate Account Highlights

FY 2020

- 6.24% net total return one-year ended June 30, 2020
- Value gains among industrial, office and apartment assets
- Near-term commercial lease rollover (next three years) reduced from 51% to 21%
 - Lower industrial lease rollover exposure
 - Successful leasing efforts at 330 North Brand Boulevard office building
 - Early lease renewal with major tenant at Virginia Square office building

FY 2021

- Maintain focus on maximizing rent collections
- Ensure office properties are maintaining COVID-19 protocols as tenant employees return to work
- Upgrade apartment units and common areas – take advantage of attractive suburban locations

COVID-19 and the ARMB Separate Account

Operational changes to date

Industrial

- Minimal operational impact due to property configuration, e.g. separate entrances, surface parking
- Tenants are responsible for interior cleaning (and for meeting local, state, and federal guidelines related to cleaning)
- Tenants are required to report positive cases of COVID-19 to property management

Apartment

- Leasing traffic down, but online new / renewal leasing and tenant interaction has been very effective
- Strong renewal rates and some renewal increases as residents avoid relocating
- Closed amenity areas undergoing incremental re-opening; cleaning and social distancing protocols in place
- Interior unit upgrades resumed and proposed clubhouse renovation plan revised after COVID-19 review

Office

- Tenants re-opening at 25%-50% capacity; cleaning and social distancing protocols in place
- Approved CDC signage and hand sanitizing stations have been installed in all common areas

Retail

- Property management monitoring state and local regulations; tenants have responsibility for their own stores
- Establishment of dedicated pick-up / drive-up parking spaces for restaurants and shops
- Parking lots / walkways in use for outdoor eating and displays

ARMB Separate Account properties

As of June 30, 2020

Property		Prop Type	Net Rent. Sq.Ft./Units	Cost (\$ in 000s)	Market Value (\$ in 000s)	% Leased
One Maroon Circle	Englewood, CA	O	86,906	\$19,722	\$10,900	96
Remington at Lone Tree	Lone Tree, CO	A	232 units	27,254	63,800	98
Memphis Industrial Park	Memphis, TN	I	900,000	37,657	41,100	71
Two Maroon Circle	Englewood, CO	O	85,681	17,149	14,000	100
Springbrook Apartments	Renton, WA	A	160 units	21,764	53,200	98
West 55th Street	McCook, IL	I	367,870	27,142	39,900	94
Winston Park Shopping Center ⁽¹⁾	Coconut Creek, FL	R	67,787	12,166	16,500	100
Westford Valley Marketplace ⁽¹⁾	Westford, MA	R	142,763	32,395	49,800	80
Winton Industrial Park ⁽¹⁾	Hayward, CA	I	825,808	55,059	151,000	96
400 Crown Colony Drive	Quincy, MA	O	118,909	28,641	17,000	90
330 North Brand Boulevard ⁽²⁾	Glendale, CA	O	323,467	94,584	103,000	92
Virginia Square ⁽³⁾	Arlington, VA	O	159,452	67,487	67,200	80
Total				\$441,020	\$627,400	91 % ⁽⁴⁾

Notes:

⁽¹⁾ Property originally acquired by PMRealty; transferred to ARMB Separate Account effective October 1, 2003 based upon September 30, 2003 independent appraisal value.

⁽²⁾ Property originally acquired by Cornerstone; transferred to ARMB Separate Account effective October 1, 2014 based upon September 30, 2014 independent appraisal value.

⁽³⁾ Property originally acquired by LaSalle; transferred to ARMB Separate Account effective January 1, 2020 based upon internal valuation prepared by prior advisor.

⁽⁴⁾ The percentage leased is weighted by market value.

Section 2

Property photos, biographies and exhibits

ARMB Separate Account – office properties



**330 North Brand Boulevard
Glendale, CA**



**Virginia Square
Arlington, VA**

ARMB Separate Account - office properties



**One Maroon Circle
Englewood, CO**



**Two Maroon Circle
Englewood, CO**



**400 Crown Colony Drive
Quincy, MA**

ARMB Separate Account – apartment properties



Remington at Lone Tree
Lonetree, CO



Springbrook Apartments
Renton, WA

ARMB Separate Account - industrial properties



Winton Industrial
Hayward, CA



West 55th Street
McCook, IL



Memphis Industrial Park
Memphis, TN

ARMB Separate Account - retail properties



**Westford Valley Marketplace
Westford, MA**



**Winston Park Shopping Center
Coconut Creek, FL**

Jeffrey G. Maguire, CFA

Senior Portfolio Manager
Managing Director



Years of investment
industry experience: 37

Education: University of
Connecticut (US), BA;
Wharton School, University
of Pennsylvania (US), MBA;
Yale Law School (US), JD

Jeff Maguire is a Senior Portfolio Manager for Real Estate US, a business which forms part of Real Estate & Private Markets within UBS Asset Management. He is a member of the Investment Committee, the Strategy Team and chairs the Performance Measurement and Reporting Committee.

Before joining the company's predecessor organization in 1997, Jeff served as Senior Investment Officer - Real Estate for the Massachusetts Pension Reserves Investment Board (PRIM), where he managed its core and non-core real estate portfolios.

Prior to his public service with PRIM, Jeff worked for Travelers Realty Investment Company, managing real estate equity and debt portfolios and restructuring debt transactions. He also managed the company's three largest borrower relationships in the New England region.

Jeff is a member of the board of the National Multi Housing Council and a former board member of the Pension Real Estate Association (PREA). He is admitted to practice law in Connecticut. Jeff is a member of the CFA Institute.

Note: As at February 2020

Peter J. Gilbertie

Portfolio Manager
Executive Director



Years of investment
industry experience: 33

Education: University of
Connecticut (US), BS

Since 2005, Pete Gilbertie has served as portfolio manager for a commingled closed-end fund and several individual accounts for Real Estate US, a business which forms part of Real Estate & Private Markets within UBS Asset Management.

Pete was previously responsible for the review of independent appraisals and internal valuations across the company's portfolio. He also provided technical and underwriting support to the Portfolio Management, Acquisitions, Sales and Asset Management areas.

Prior to joining the firm's predecessor organization in 1997, Pete spent nine years as a real estate analyst and appraiser, including eight years with New England's largest commercial appraisal firm, Edward F. Heberger & Associates, where he held the position of Senior Appraiser.

He is a former Connecticut State Certified General Real Estate Appraiser and has been qualified as an expert witness in both the Connecticut Superior and Federal Bankruptcy Courts on matters of real property valuation.

Note: As at February 2020

Thomas J. O'Shea

Head of Portfolio and Client Services Unit Managing Director



Years of investment industry experience: 28

Education: University of Hartford (US), BS; University of Connecticut (US), MBA; Georgetown University Law Center (US), JD

Tom O'Shea is the Head of the Portfolio and Client Services Unit for Real Estate US, a business which forms part of Real Estate & Private Markets within UBS Asset Management. Prior to assuming this position in 2014, Tom was the General Counsel for Asset Management – Real Estate. He was responsible for legal matters for the Real Estate business area.

Tom is a member of the Management Committee, the Investment Committee and the Strategy Team for the US real estate business.

Prior to joining UBS in April 2004, Tom was a Partner in the Real Estate Group of Bingham McCutchen LLP, where he was active in all aspects of real estate law with an emphasis on representing financial institutions in various debt and equity investment matters. He also was active in a wide variety of real estate asset management activities.

Tom is a member of the Connecticut and American Bar Associations and he is admitted to practice law in Connecticut. Tom is also involved in and served on the Board of Directors of the Association of Foreign Investors in Real Estate (AFIRE) and has been involved in the National Association of Real Estate Investment Managers (NAREIM), the Pension Real Estate Association (PREA) and the Real Estate Finance Association (REFA).

Tom holds the Series 7, 24 and 66 licenses with the Financial Industry Regulatory Authority (FINRA).

Note: As at February 2020

Marc E. Miller

Associate Portfolio Manager
Director



Years of investment
industry experience: 29

Education: University of
Connecticut (US), BA;
University of Connecticut
(US), MBA

Since the start of 2019, Marc Miller has served as Associate Portfolio Manager for a commingled closed-end fund and several individual accounts for Real Estate US, a business which forms part of Real Estate & Private Markets within UBS Asset Management.

Previously, Marc was as an asset manager of multifamily assets for several funds and individual accounts.

Earlier, Marc had the role of analyst in US – Research and Strategy responsible for market forecasting of all property types. He also provided technical and underwriting support to the Portfolio Management, Acquisitions, Sales and Asset Management areas.

Prior to joining the firm's predecessor organization in 2001, Marc spent ten years as a team leader in credit administration at Bank of America. He worked in OREO disposition, REIT analysis, appraisal, and market analysis.

Before working in financial services, Marc was a job captain and designer for architectural firms. His focus was on construction management and adaptive rehabilitation of existing structures.

Note: As at February 2020

General risk disclosure

Certain sections of this presentation that relate to future prospects are forward looking statements and are subject to certain risks and uncertainties that could cause actual results to differ materially. This material is designed to support an in-person presentation, is not intended to be read in isolation, and does not provide a full explanation of all the topics that are presented and discussed.

An investment in real estate will involve significant risks and there are no assurances against loss of principal resulting from real estate investments or that the portfolio's objectives will be attained.

This is not a recommendation. Investors must have the sophistication to independently evaluate investment risks and to exercise independent judgment in deciding to invest in real estate funds. Investors must also have the financial ability and willingness to accept and bear the risks, including, among other things:

- **Risk of illiquidity.** Real estate is an illiquid investment and the account may not be able to generate sufficient cash to meet withdrawal requests from investors. Redemptions may be delayed indefinitely;
- **Risks of investing in real estate.** These risks include adverse changes in economic conditions (local, national, international), occupancy levels and in environmental, zoning, and other governmental laws, regulations, and policies;
- **Use of leverage.** Leverage will increase the exposure of the real estate assets to adverse economic factors, such as rising interest rates, economic downturns, or deteriorations in the condition of the properties or their respective markets and changes in interest rates; and
- **Limitations on the transfer of fund units.** There is no public market for interests in any of our funds and no such market is expected to develop in the future.
- **Legal & Taxation.** Investors should consult their own legal and tax advisers for potential US and/or local country legal or tax implications on any investment

Investors should evaluate all risk and uncertainties before making any investment decision. Risks are detailed in the respective fund's offering memorandum.

Required notes

The NCREIF Fund Index-Open End Diversified Core Equity ("NFI-ODCE") is a fund-level capitalization-weighted index beginning as of the first quarter of 1978, inclusive. The Total Composite and NFI-ODCE returns are time-weighted, include cash balances and leverage, and are presented gross of fees. As of June 30, 2020 the NFI-ODCE report consisted of 25 active funds with total net assets of USD 206.8 billion.

The NPI consists of 8,652 properties valued at USD 695.7 billion as of June 30, 2020. The NPI is dollar-weighted and time-weighted and reflects reinvestment of income. It consists of existing properties only (development projects and participating mortgages are excluded), is unleveraged, and excludes cash and other non-property related assets, liabilities, income, and expenses such as management fees.

Please note that past performance is not a guide to the future. The value of investments and the income from them may go down as well as up, and investors may not get back the original amount invested.

Risks

- Investors should be aware that return objectives are subject to a number of assumptions and factors, a change in any of which could adversely affect returns. Accordingly, investors should note the limitations of an objective.
- Investments in direct real estate and real estate funds involve a high degree of risk. For instance, events in 2008 and 2009 such as the deterioration of credit markets and increased volatility have resulted in a historically unprecedented lack of liquidity and decline in asset values. The value of investments and income from them may increase or decrease. Investors must have the financial ability and willingness to accept and bear the risks (including, among other things, the risk of loss of investment) that are characteristic of real estate investing and investing in commingled fund for an indefinite period of time. Among the risks to be considered are:
 - **Risks of investing in real estate.** Risks include adverse changes in market and economic conditions, zoning, and other governmental laws, regulations, and policies, occupancy levels and the ability to lease space, and environmental risks, and risk of uninsured losses.
 - **Debt investment risk.** Risk includes risks of borrower defaults, bankruptcies, fraud and special hazard losses that are not covered by standard hazard insurance
 - **Restrictions on redemption and transferability of shares or units; illiquidity.** Real estate is an illiquid investment and the account may not be able to generate sufficient cash to meet withdrawal requests from investors.
 - **Reliance on controlling persons and third parties.** The exercise of control over an entity can impose additional risks and the fund can experience a significant loss. The risk of third parties includes a conflict between their objectives and those of the account or fund.
 - **Use of leverage.** Leverage will increase the exposure of the real estate assets to adverse economic factors, such as rising interest rates, economic downturns, or deteriorations in the condition of the properties or their respective markets and changes in interest rates
 - **Legal & Taxation.** Investors should consult their own legal and tax advisers for potential US and/or local country legal or tax implications on any investment
 - **Currency risk.** The funds and accounts managed by UBS Realty Investors LLC are denominated in US Dollars. There is a potential for loss due to currency fluctuations for non-US investors.
 - **Lack of diversification.** Individually managed accounts and funds in their initial investment periods may have investments that are relatively large compared to the account's or fund's anticipated total value. Any limit to diversification increases risk because the unfavorable performance of even a single investment might have an adverse effect on the aggregate return.
 - **Unspecified investments.** There can be no assurance that the advisor will be able to continually locate and acquire assets meeting the fund or account's objective. Competition for assets may generally reduce the number of suitable prospective assets available.
- In considering an investment in a commingled real estate fund, prospective investors must rely on their own examination of the partnership agreement, private placement memorandum, and all terms of the offering, including merits and details of these and other risks involved. If there are any discrepancies in fund terms between this presentation and the private placement (offering) memorandum, the memorandum shall prevail.
- This is not a recommendation to invest in any product or services. Investors must have the sophistication to independently evaluate investment risks and to exercise independent judgment in deciding whether or not to invest in real estate and real estate funds.

Updated: June, 2012

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Real estate investing involves risks. Risks include restrictions on the transferability and resale of shares, risk of investing in real estate, and the possibility of loss of investment does exist.

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UBS Farmland Investors, LLC

Mandate: Farmland

Hired: 2004

Firm Information	Investment Approach	Total ARMB Mandate
<p>UBS Farmland Investors, LLC is a subsidiary of UBS Realty Investors LLC, which is an indirect wholly owned subsidiary of UBS AG. UBS AG is a pre-eminent global financial services firm, with stock registered on both the New York and Zurich stock exchanges.</p> <p>As of 6/30/20, the firm's total assets under management were \$1.6 billion.</p> <p>Key Executives: <i>Jim McCandless</i>, Head of Real Estate Farmland <i>Daniel E. Murray</i>, Director</p>	<p>UBS Farmland Investors, LLC investment decision-making is team-oriented. Regional managers work with the portfolio manager and investment committee in the decision-making process. Regional managers source and screen new investment opportunities in consultation with the portfolio manager and members of the investment committee to ensure that the investments meet the established guidelines and standards. Approval and commitment of capital must be cleared by the regional manager, portfolio manager and investment committee.</p> <p>Inputs to the process include:</p> <p>Comparable sales and rent data; rainfall and growing season statistics; irrigation sources and water costs; drainage systems; crop yield history; soil types and topography; crop marketing and/or contracts; buildings and improvements; conservation plans; mineral exploration/production activity; economic analysis – returns/projections; phase I environment site assessment; and legal (access, encroachment, etc).</p> <p>Benchmark: Leased only properties in NCREIF Farmland Index weighted 80% row and 20% permanent crop.</p>	<p>Assets Under Management: 6/30/20: \$596,135,660</p>

Concerns: None

6/30/2020 Performance						
	Last Quarter	1-Year	3-Years Annualized	5-Years Annualized	6-Years Annualized	15-Years Annualized
Manager (gross)	.98%	3.84%	4.35%	5.18%	5.43%	9.41%
Fee	.20%	.82%	.83%	.88%	.88%	.89%
Manager (net)	.78%	3.02%	3.52%	4.30%	4.55%	8.52%
Benchmark	.92%	4.17%	5.11%	5.41%	5.46%	10.62%



For limited distribution to
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Midnight Sun, Inc.

UBS Asset Management, Real Estate & Private Markets

Real Estate Farmland

Alaska Retirement Management Board

Jim McCandless

Dan Murray

September 17, 2020

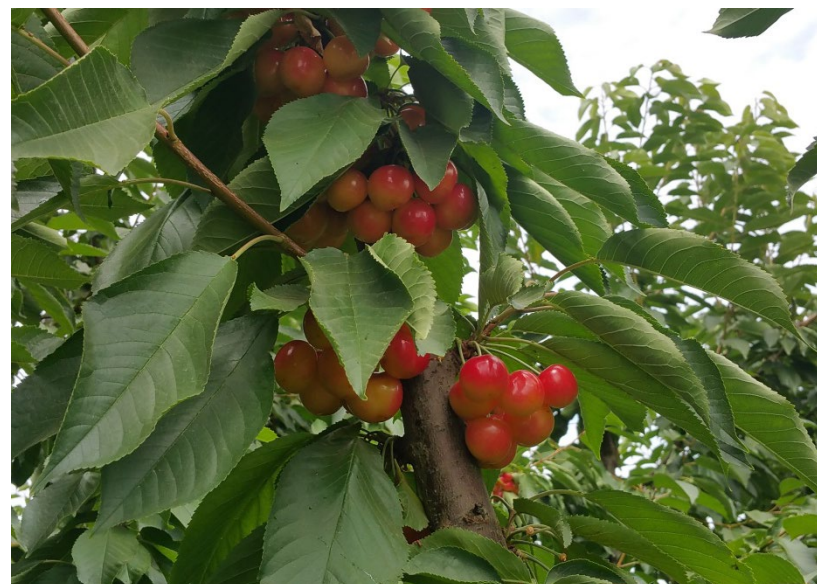


Table of contents

Section 1	Midnight Sun, Inc.	3
Section 2	Farmland Investment Characteristics	8
Section 3	Biographies	17
Section 4	Appendix	20

General risk disclosure

- Certain sections of this presentation that relate to future prospects are forward looking statements and are subject to certain risks and uncertainties that could cause actual results to differ materially. This material is designed to support an in-person presentation, is not intended to be read in isolation, and does not provide a full explanation of all the topics that are presented and discussed.
- An investment in farmland will involve significant risks and there are no assurances against loss of principal resulting from farmland investments or that the portfolio's objectives will be attained.
- **This is not a recommendation. Investors must have the sophistication to independently evaluate investment risks and to exercise independent judgment in deciding to invest in farmland funds.** Investors must also have the financial ability and willingness to accept and bear the risks, including, among other things:
 - **Risk of illiquidity.** Farmland is an illiquid investment. There can be no assurance that there will be a ready market for each property at the time it may be necessary to dispose of the same;
 - **Risks of investing in farmland.** These risks include adverse changes in economic conditions (local, national, international), persistent changes in weather, and environmental issues;
 - **Limitations on the transfer of fund units.** There is no public market for interests in any of our funds and no such market is expected to develop in the future; and
 - **Legal & Taxation.** Investors should consult their own legal and tax advisers for potential US and/or local country legal or tax implications on any investment.
- Investors should evaluate all risk and uncertainties before making any investment decision. Risks are detailed in the Fund's offering memorandum.

Section 1

Midnight Sun, Inc.

UBS Farmland Investors LLC

Northwest Region

Charles W. Bryan, Jr. ARA
Director

Midwest Region

Brian C. Duke, AFM
Director

Western Region

Erik C. Roget, ARA,
RPRA, AFM
Director

Southern Region

D. Cullum Jefferies
Director



UBS Farmland Investors LLC

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James B. McCandless
Managing Director
Portfolio Manager
Head of Real Estate Farmland

Daniel E. Murray
Director

- UBS Farmland Investors LLC is the farmland investment business within UBS Asset Management, Real Estate & Private Markets
- UBS Farmland Investors LLC began investing for US tax-exempt investors in 1991 through its predecessor and has been a major contributor to the NCREIF Farmland Index since its inception in that same year
- Our seasoned regional officers are responsible for the sourcing, acquiring, managing and selling of properties in their regions subject to investment committee approval

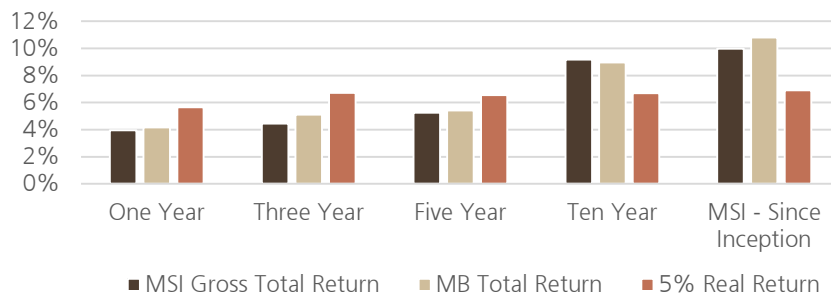
Midnight Sun, Inc. portfolio

- Midnight Sun, Inc was launched October 7, 2004
- Portfolio summary:
 - USD 600.5 million in gross asset value
 - Farmland value USD 593.2; Cost USD 366.6
 - 97,312 acres (152 square miles) in thirteen states
 - 67 investments growing over 25 major crops
- One year gross property level return was 3.95%, with since inception gross return of 9.98%
- Cash Distributions: USD 198 million Since Inception

Data as of June 30, 2020

Source: UBS Asset Management, Real Estate & Private Markets, Real Estate Farmland

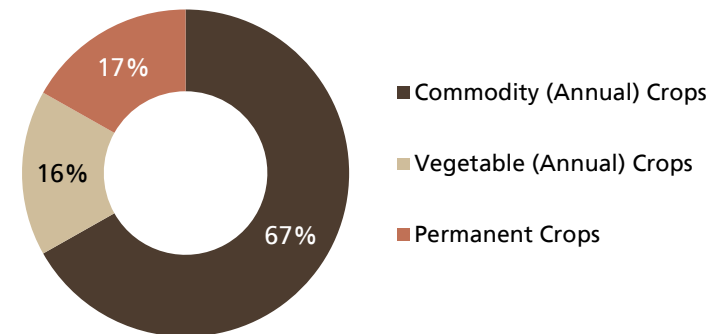
Property level total returns



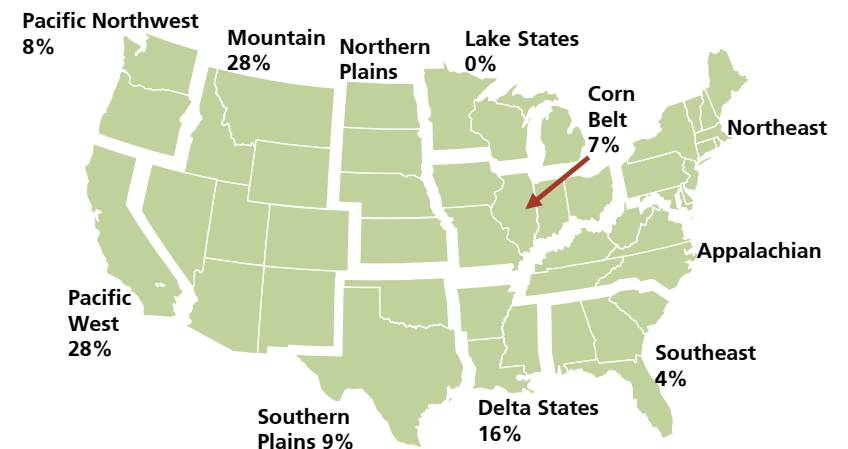
Since inception returns for period 7/1/06-6/30/20

Source: NCREIF Farmland Index (NFI) and Core Farmland Index (CFI). Past performance is not an indication of future results and the possibility of loss does exist. Returns are before fees. The effect of which reduces returns. This chart supplements the UBS Farmland Investors Composite attached. The CFI and the NFI do not include fund-level management or other fees or fund-level expenses, is not available for investment and is for illustrative purposes only.

Portfolio distribution by crop type



Portfolio distribution by geographic region



Midnight Sun, Inc. portfolio

Recent Portfolio Activity - FY 2020

Capital Improvement Projects

Orchard Redevelopment:

- **MSI#15 Galactic Orchards:** Grafting 38.5 acres of remaining old Galas to Cosmic Crisp & Royal Red Honey Apples
- **MSI#16 Zilla Orchard:** Removing 18.1 Acres of Cherries and Replacing with 19 Cosmic Crisps
- **MSI#17 Phipps Road Orchard:** Grafting 44 acres of old Galas, Jonagold and Honeycrisp to Pink Lady & Foxtrot Gala Apples
- **MSI#66 Wapato Orchard:** Replace 14.7 ac of old Fuji trees with Royal Red Honeycrisp
- **MSI#70 Tieton Orchard:** Grafting 28 acres of remaining old Galas to Cosmic Crisp

Other Improvements:

- **MSI#22 Gaver Ranch:** New culverts for compliance with local regulations and improved drainage
- **MSI#38 Pleasant Valley:** New Wheel lines for improved irrigation



New Cosmic Crisp plantings on MSI#16 Zilla Orchard



New Cosmic Crisp plantings on MSI#66 Wapato Orchard

Data as of June 30, 2020

Source: UBS Asset Management, Real Estate & Private Markets, Real Estate Farmland

Midnight Sun, Inc. portfolio

Recent Portfolio Activity - FY 2020

Sales:

MSI#62 Agua Dulce, Nueces County, TX – Closed 7/15/2020

- 3,294 acres, Dryland Row Crop
- Sale Price: USD 9.9 million, Appraised Value: USD 6.7 million, Book Value: USD 3.3 million
- Net Gain: USD 6.5 million

MSI#68 Danskin Farm, Owyhee County, ID – Closed 8/31/2020

- 4,146 acres, Partially Irrigated Row Crop
- Sale Price: USD 9.9 million, Appraised Value: USD 8.8 million, Book Value: USD 8.6 million
- Net Gain: USD 1.3 million



MSI#62 Agua Dulce – Recently seeded in early spring



MSI#68 Danskin Farm – Dryland portion of farm in late winter

Data as of June 30, 2020

Source: UBS Asset Management, Real Estate & Private Markets, Real Estate Farmland

Section 2

Farmland Investment Characteristics

US farmland investment universe

- The investment universe of US farmland is significant at USD 2.7 trillion in value
- A diversity of crops are grown across the US
- A significant proportion of commodity crops are grown in the Corn Belt, Delta States and Southern Plains
- The Pacific West is an important and diverse agricultural region with both annual and permanent cropland



Photo of rice courtesy of USDA NRCS.

Source: USDA as of August 2020 (2019 value)

Competitive advantages of US agriculture



Source: ESRI

Geography:

- Largest cropland mass in the world located in latitudes favorable to crop production
- Midway between major export markets of Europe, Asia, Mexico and Canada

Infrastructure:

- Mississippi, Ohio, Columbia Rivers
- Rails, highways
- Port facilities - New Orleans, Portland, Houston, Los Angeles, Baltimore

Technology & capital:

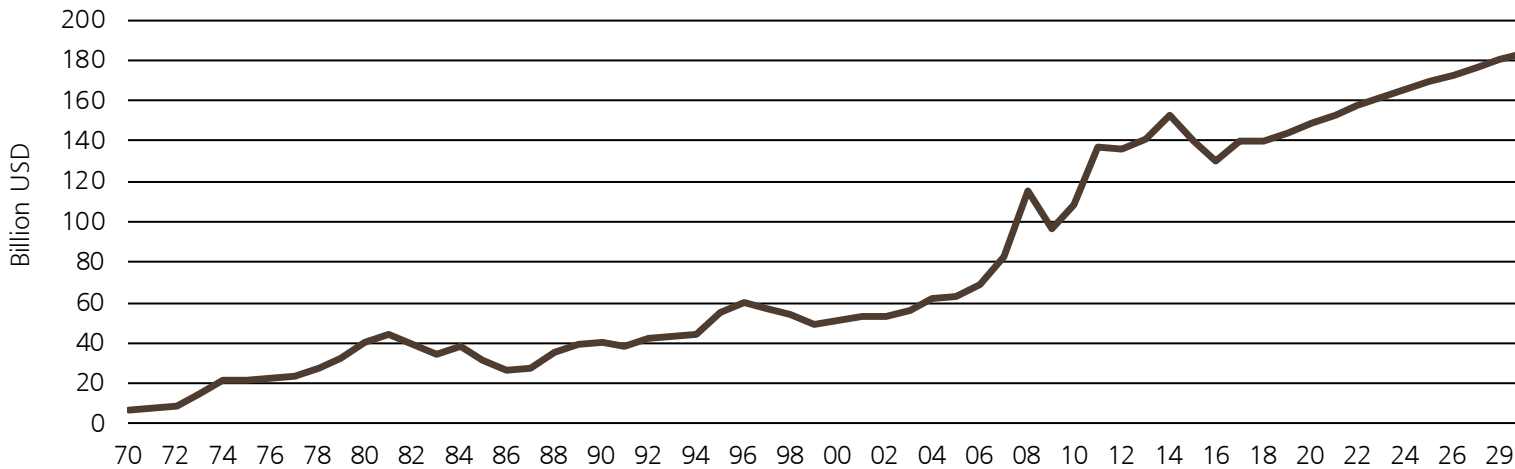
- Biotechnology, mechanical, conservation
- Land grant colleges, agricultural extension programs
- Innovative farmers with strong management skills
- Well-capitalized farm economy

Dominant global export market share:

- Increasing global demand from improving income in developing countries and alternative fuels (ethanol and biodiesel)
- US is most efficient and reliable producer

Expanding global demand for farm commodities

US agricultural exports



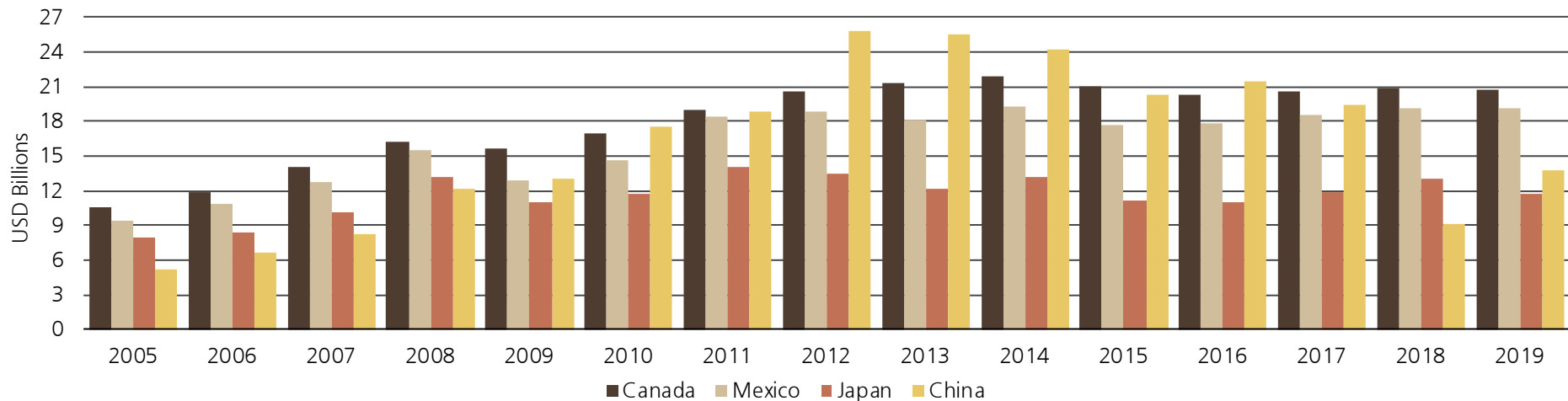
Source: USDA as of February 2020. 2018 to 2029 are forecasted by the USDA.

Data is based on fiscal year.

- GDP growth around the globe is creating additional demand for commodities in general
- Improving incomes in developing countries are having a major impact on the demand for farm commodities
- The US is the most dependable exporter of farm commodities in the global market

US agricultural exports

US agricultural exports, four largest buyers 2005-2019

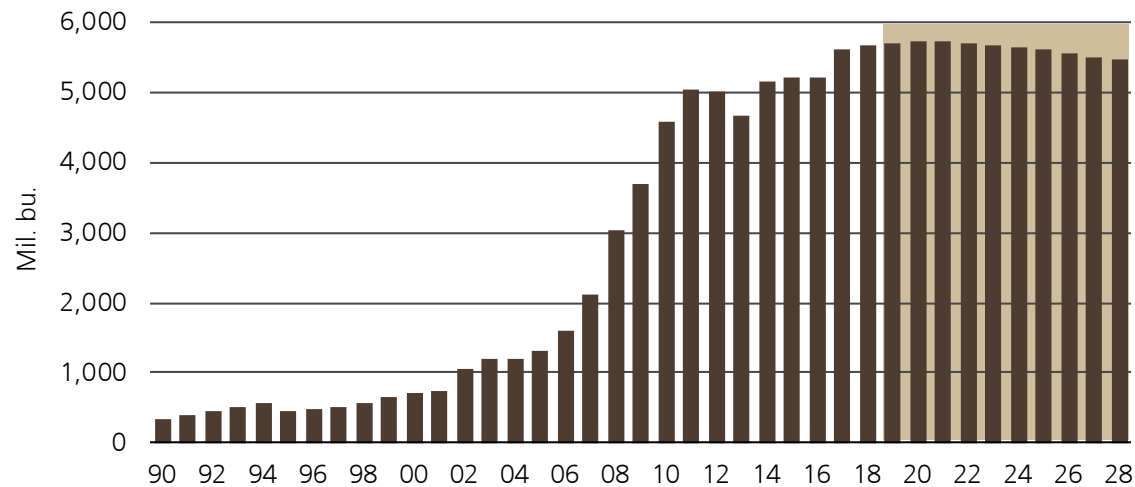


Source: USDA/Economic Research Service as of April 2020.

- Emerging and developing economies are a source of rising demand for US agricultural products
- As incomes rise, lifestyles change. For example, people consume more protein in their diet (more meat requires more livestock feed). They also become more mobile and burn more fuel (more fuel increases ethanol demand).
- China is a prime example. Sixteen years ago they were a small buyer and, despite temporary trade tensions, China remains a prominent export market while Canada and Mexico continue to increase demand.

Additional demand from alternative fuels

US corn used for ethanol

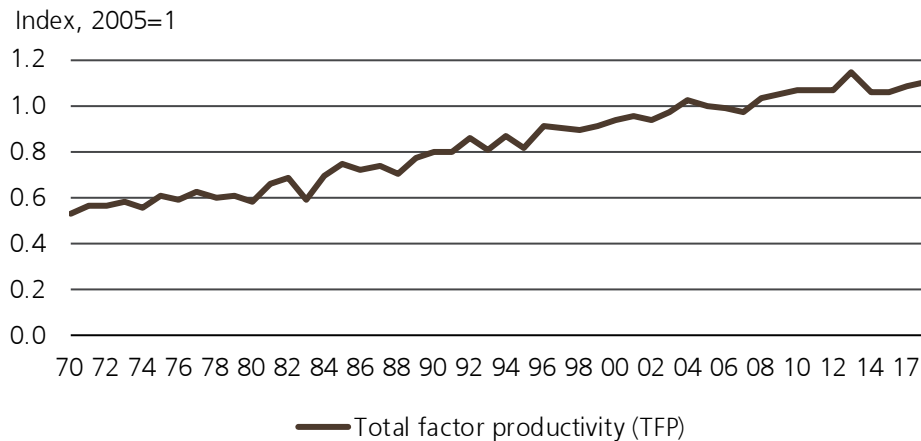


Source: USDA as of November 2019, through 2028 are forecasted by the USDA.

- The recent push for alternative fuels in the US has accelerated the demand for corn
- Increasing acreage of corn production has resulted in improved supply/demand fundamentals for other crops as well

Productivity of US agriculture

US agriculture total factor productivity 1970 - 2017



Source: USDA, Economic Research Service, Productivity in the United States as of January 2020.
USDA, Economic Research Service uses Total Factor Productivity (TFP) which measures changes in the efficiency with which all inputs are transformed into outputs.

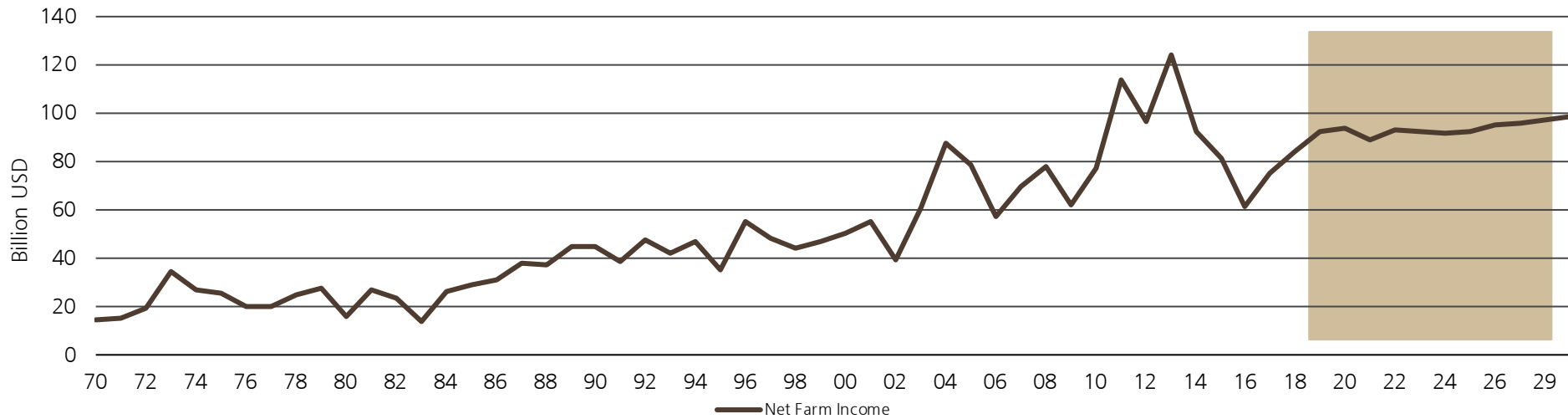
- Increased productivity is one of the main contributors to economic growth in US agriculture
- Productivity has nearly doubled since 1970
- Increased productivity contributed to, and supports, higher farmland values



AFF 30, Columbia Sun Orchard, Grant County, WA (apples)

US farm income

Net Farm Income 1970 – 2029

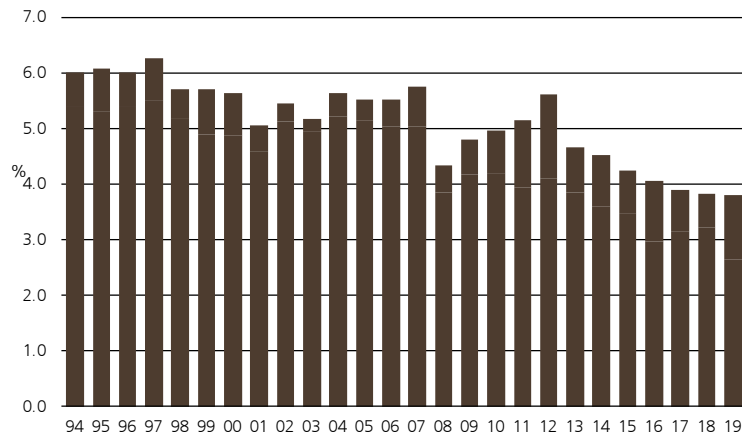


Source: USDA as of February, 2020. 2019 to 2029 are forecasted by the USDA.

- From 2013 to 2016, a sharp decline in commodity prices reduced net farm income by 50%. Since then, net farm income has rebounded and is forecasted to improve for the 4th consecutive year in 2020.
- The USDA forecast to 2029 is relatively flat after 2019
- Farmland rents and values are in the process of levelling off

US farmland income returns

Core farmland income returns



Source: NCREIF as of December 31, 2019. Past performance is not an indication of future results and the possibility of loss does exist. The Core Farmland Index does not include fund-level management or other fees or fund-level expenses, is not available for investment and is for illustrative purposes only.

- Farmland investments that are leased to local operators tend to provide a steady flow of income
- Core farmland income returns have averaged 5.09% over the past 25 years
- Capital expenses have averaged 0.72%



AFF 10, Sebastian Farms, Willacy County, TX (cotton and wind)

Section 3

Biographies

UBS Farmland Investors LLC biographies

Investment committee

- **James B. McCandless**, Managing Director, Head of Real Estate Farmland, and President/Chief Executive Officer of UBS Farmland Investors LLC. Mr. McCandless is one of the founders of AgriVest. He has over 47 years of experience financing and investing in agricultural real estate. His career includes positions with Bank of America, Connecticut Mutual Life Insurance Company and Bell Investment Company. Mr. McCandless' duties with these institutions focused exclusively on financing and equity investment in agricultural real estate. His experience covers a broad range of property types in the primary farming regions of the United States. Mr. McCandless received his bachelor's degree in Animal Science and Business Administration from Oklahoma State University. He is an affiliated member of the American Society of Farm Managers and Rural Appraisers, a member of the Pension Real Estate Association and the National Council of Real Estate Investment Fiduciaries.
- **Daniel E. Murray**, Director for UBS Farmland Investors, LLC. Mr. Murray is responsible for the Administration of UBS Farmland Investors LLC's asset management activities, property and portfolio performance measurement, as well as evaluation and analysis of property acquisitions and sales. He has over 10 years of experience in agricultural investment work. Prior to joining the firm in 2019, Mr. Murray held positions in Farmland Investment firms, Commodity Trading firms and a Dairy Research Center. He has undergraduate degrees in Animal Science as well as Applied Economics and Management from Cornell University and an MBA in Finance from Rensselaer Polytechnic Institute. He is a Level II CFA candidate.
- **Charles W. Bryan, Jr.**, ARA, Director of UBS Farmland Investors LLC. Mr. Bryan is responsible for managing assets in the Northwest region and is based in Nampa, Idaho. He has been actively involved in agricultural real estate for over 35 years, primarily in the Northwest. Prior to joining the staff of UBS Farmland Investors LLC in 2005, he was a lending officer with Farm Credit Services in Idaho. Mr. Bryan has extensive farmland appraisal experience having also served as a Senior Appraiser and an Engineer Appraiser with Farm Credit Services. He received his bachelor's degree in Geology from Boise State University. He holds the designation "Accredited Rural Appraiser" awarded by the American Society of Farm Managers and Rural Appraisers.
- **Cullum Jefferies**, Director of UBS Farmland Investors LLC. Mr. Jefferies is responsible for managing assets in Texas, Arkansas, Louisiana, Mississippi and Florida. He has over 20 years of experience in real estate investment management. Prior to joining the staff of UBS Farmland Investors LLC in 2009, Mr. Jefferies was with GE Real Estate where he handled acquisitions, asset management, and valuations. He received his bachelor's degree in agribusiness and master's degree of land economics and real estate from Texas A & M University. He owns a farm with his parents in West Central Texas

UBS Farmland Investors LLC biographies

Investment committee

- **Erik C. Roget**, ARA, RPRA, AFM, Director of UBS Farmland Investors LLC. Mr. Roget is responsible for managing assets in California and Arizona and is based in Lodi, CA. He has been actively involved in California and Western US agricultural real estate for over 38 years. Prior to joining the staff of UBS Farmland Investors LLC in 2010, he was Regional Vice President, Western Region, with Rabo Agri-Finance, an affiliate of Rabobank NA. Mr. Roget has extensive farmland appraisal and management experience having also served with Equitable Agri-Business Inc., Correia-Xavier Appraisals and the Federal Land Bank. He received his Bachelor's Degree in Agri-business from California State University-Fresno. He holds the designation "Accredited Rural Appraiser", "Accredited Farm Manager" and "Real Property Review Appraiser" awarded by the American Society of Farm Managers and Rural Appraisers. He holds a CA Certified General Appraiser's license. He and his wife own a farm in Madera County, CA.
- **Brian C. Duke**, AFM, Director of UBS Farmland Investors LLC. Mr. Duke is responsible for managing assets in Illinois, Indiana, Colorado, Wisconsin and Georgia. He has 29 years of experience in the acquisition and management of farmland investments in the Central and Western United States. Prior to joining the staff of UBS Farmland Investors in 2014, Mr. Duke was with The Northern Trust Company for 18 years. He was most recently serving as the Director of Agricultural Services, responsible for the management of over 200 agricultural properties in 27 states. Prior to joining Northern Trust he was the Assistant Manager of L. J. Duke Farms in Indiana. He received his Bachelor's Degree in Agricultural Economics from Purdue University. He holds the designation "Accredited Farm Manager" awarded by the American Society of Farm Managers and Rural Appraisers. He is also a Board Member of The Chicago Farmers organization.
- **Barbara A. Missal**, Director of UBS Farmland Investors LLC. Ms. Missal is responsible for the management of the UBS Farmland Investors data warehouse, special projects, portfolio reporting, and assisting asset and portfolio management. She has over 30 years of experience with financial reporting and analysis in the real estate industry. Prior to joining the staff of UBS Farmland Investors in 2016, Ms. Missal was with UBS Realty Investors for 25 years. She was most recently a business analyst responsible for defining user requirements, system testing and ongoing user support for various software applications and was previously an accountant responsible for fund and property accounting. Prior to joining UBS Realty Investors, she was an auditor and Certified Public Accountant with Coopers & Lybrand. She received her Bachelor's Degree in Accounting from the University of Connecticut.

Section 3

Appendix

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The Fund discussed involves risks of a high degree and investors are advised to read and consider carefully the information contained in the offering documents including the detailed risk factors. There is no public market for the fund interests and no such market is expected to develop in the future. Risks include restrictions on the transferability and resale of shares, risk of investing in real estate and in developing markets, and the possibility of loss of investment does exist.

In the US, the Global Real Estate commingled funds are distributed by UBS Fund Services (USA) LLC, member FINRA and other UBS Asset Management broker-dealer affiliates. UBS Fund Services (USA) LLC main office is located at 10 State House Square, Hartford, CT 06103. UBS Realty Investors LLC, UBS Fund Services (USA) LLC is a member of the UBS Asset Management business division and subsidiaries of UBS AG.

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Together, UBS Realty Investors LLC, UBS Farmland Investors LLC, and UBS Fund Services (USA) LLC, subsidiaries of UBS AG, comprise Real Estate US.

Callan

September 2020



Real Assets Strategic Plan Review

Avery Robinson, CAIA
Co-Head Real Assets Consulting

Jonathan Gould, CAIA
Senior Vice President

Callan

The Role of Real Assets, Revisited

Real Asset Investing Strengths and Considerations

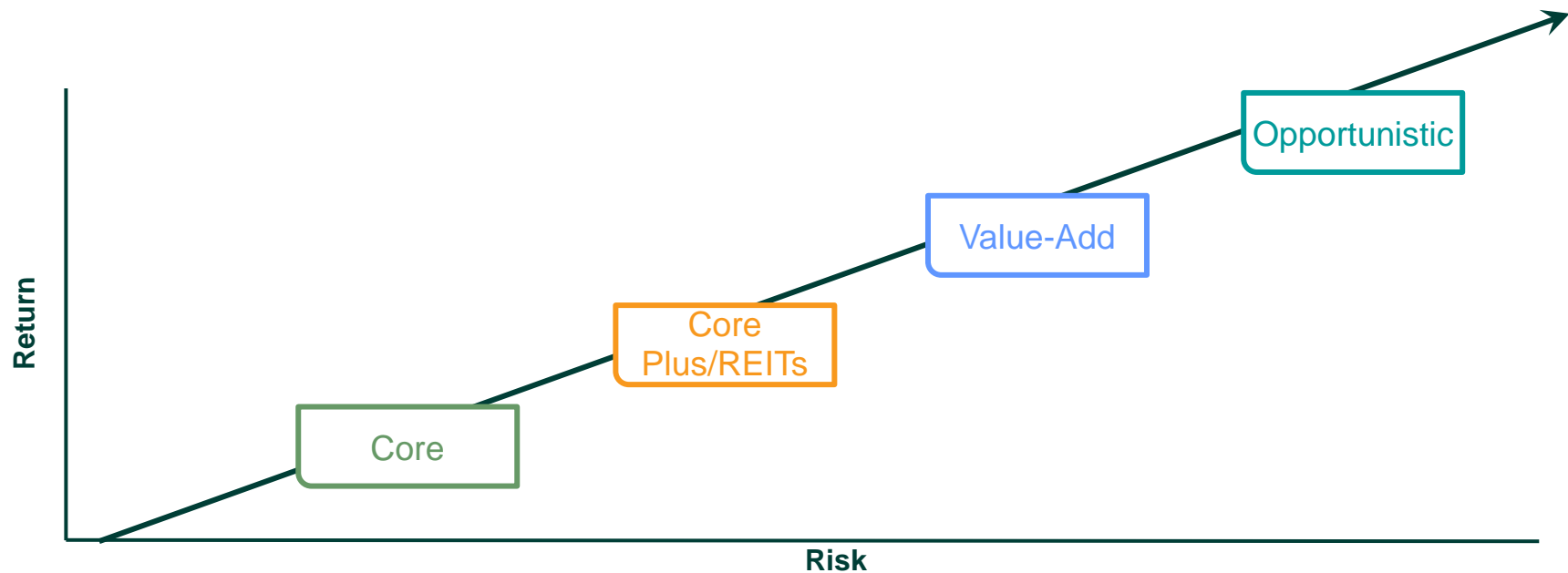
Strengths

- Competitive Returns
- Diversification benefits when added to portfolios of stocks and bonds
- Low correlations with stocks and bonds
- Strong income component
- Inefficiency creates return opportunities
- Inflation protection characteristics

Considerations

- Real Assets are cyclical in nature
- Private Real Assets
 - Not valued daily
 - Illiquid
 - Management intensive/implementation risks
 - High fees compared to mainstream asset classes
 - Lack of investable indices; benchmarking issues
- Public real estate
 - Volatility
 - Lower diversification benefits than private real assets

Private Real Assets Strategies – Relative Risk/Return



	Core		Non-Core	
	Core	Core Plus / REITs	Value-Add	Opportunistic
Net Return estimate	Up to 8%	8-10%	10-12%	13%+
Asset	Stable asset, Highly leased	Stable, plus moderate upside	Enhancement of existing asset, Material improvement, releasing	Development of a new asset, Significant capital improvement
Expected Income vs Appreciation Return	>75% from Income	65% Income / 35% Appreciation	50%/50%	>65% from Appreciation

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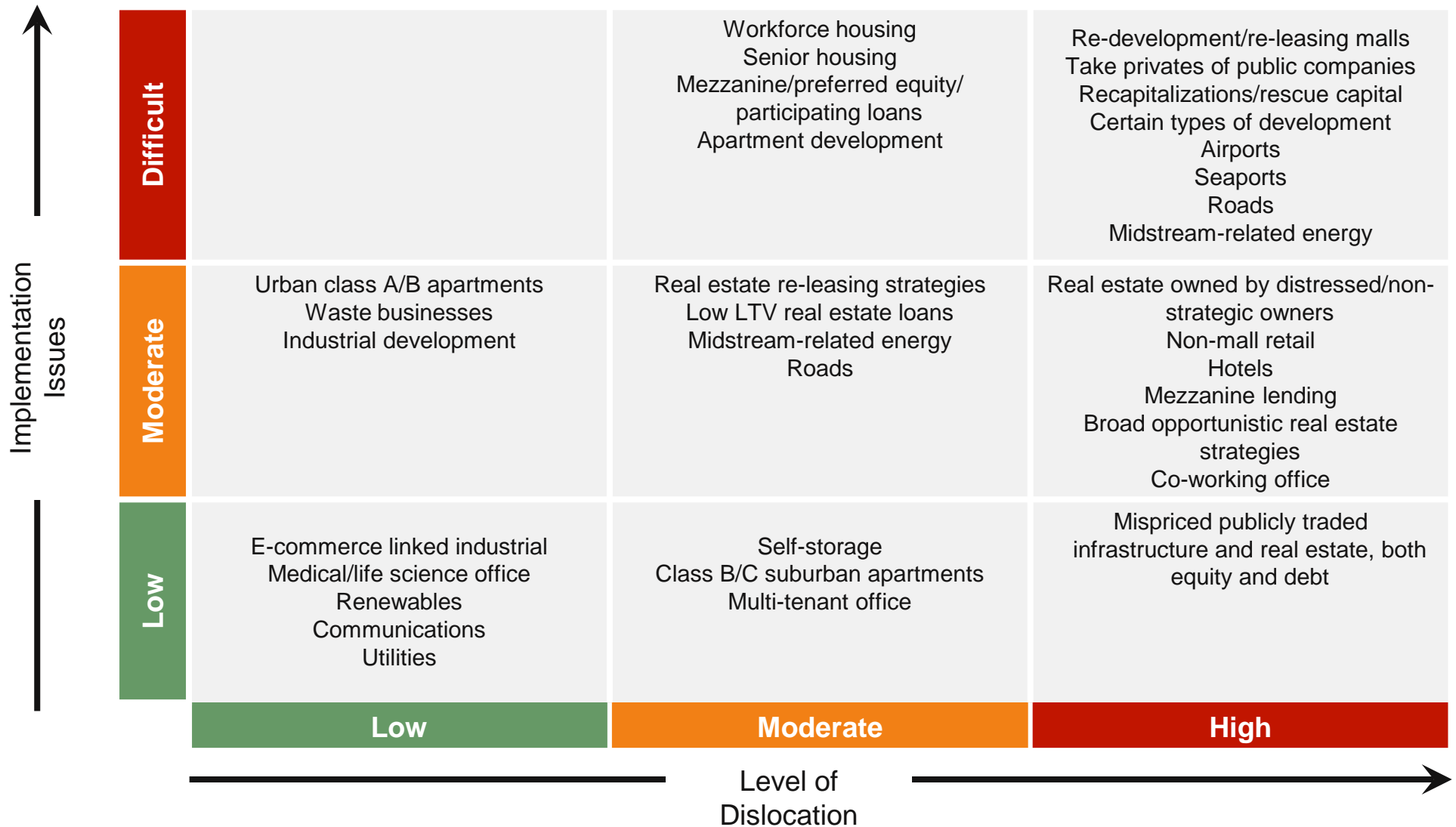
Real Assets Market Overview and Performance Review

Real Estate Market Update – COVID-19

- Prior to the COVID-19 pandemic, the overall real estate market was relatively healthy from a fundamental standpoint, albeit there were indications of the market being late in the cycle. Positive indicators included strong occupancy, upward rent growth and steady transaction volumes. However, moderating total returns and the flattening of property value appreciation, particularly in the retail sector, was cause for some cautiousness.
- While the impact of the pandemic on real estate will continue to play out over time, it is clear that all property types have and will be negatively impacted by the crisis, to varying degrees. The market consensus suggests that retail properties will be the most negatively impacted out of the four main property types. This will be followed by office and industrial, with apartments remaining the most resilient. This outlook has been supported by rent collection figures through July, with retail by far the lowest, and apartments the strongest.
- Given that U.S. stay-at-home measures began in mid- to late-March, the impact of COVID-19 on realized returns was limited at first, with the private market benchmark still delivering a positive 1.0% return for 1Q2020. However, returns turned negative for the second quarter, and additional write-downs may occur in subsequent quarters.
- Although the transactions market has come to a halt and bid-ask spreads remain wide, the crisis will eventually bring about some buying opportunities for managers poised to take advantage. This will be dictated by capital availability by newer funds with dry powder and limited existing exposure.

COVID-19 Impact Heat Map

Real estate and infrastructure assets



- As the pandemic continues, real estate distress will spread with more severe impact resulting in more opportunities.
- Infrastructure assets with GDP-linked revenue are more impacted currently and will also shift to the right.

U.S. Private Real Estate Market Trends

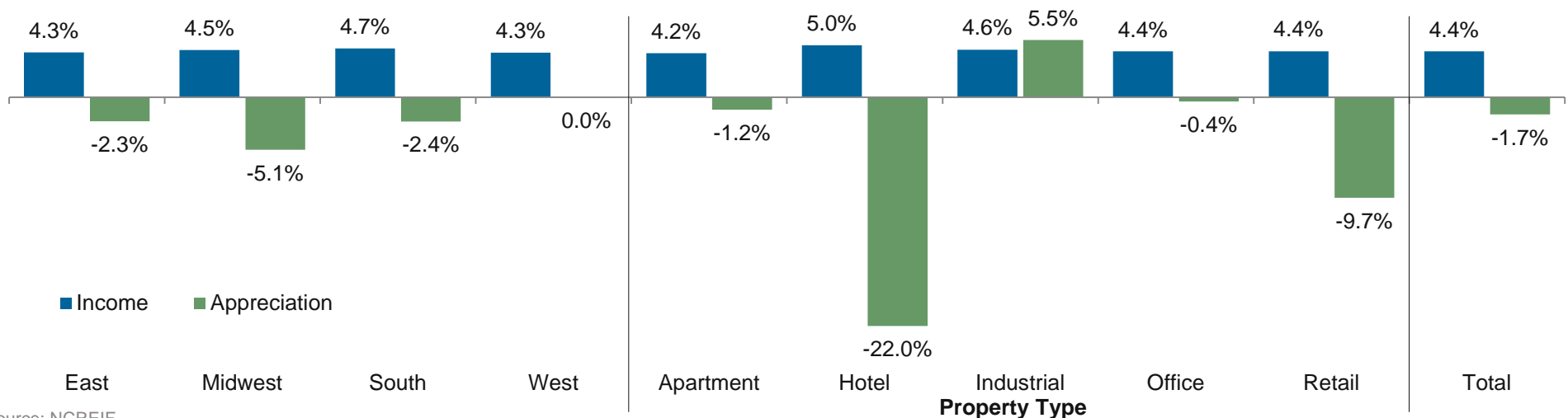
Market Performance through 2Q2020

Results

- Pandemic's continued impact reflected in 2Q results
- Income remains positive except in Hotel sector
- All sectors experienced negative appreciation; Industrial remains the best performer
- Dispersion of returns by manager within the ODCE Index due to both composition of underlying portfolios and valuation methodologies/approach
- Negative returns expected for 3Q and beyond

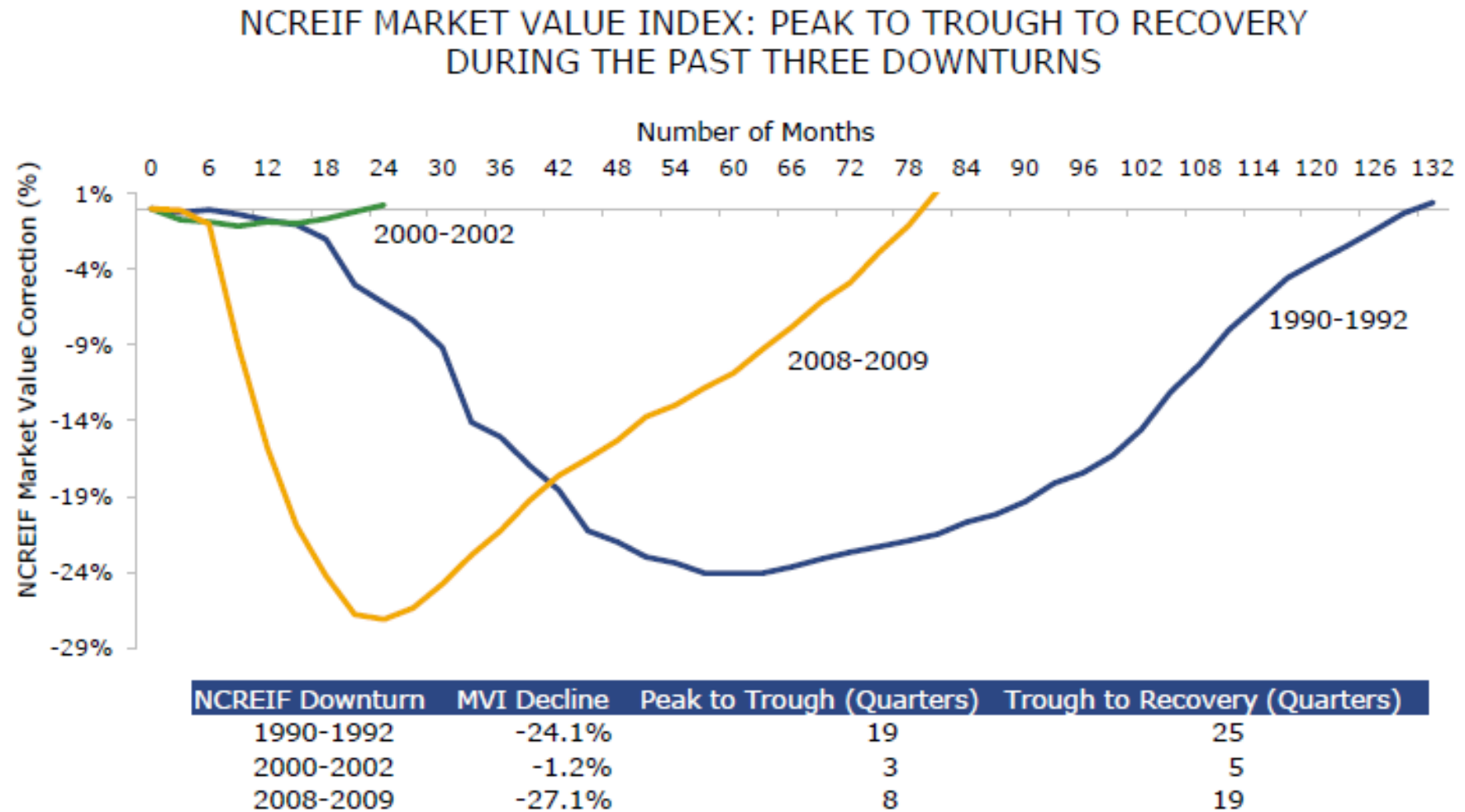
	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
NCREIF ODCE	-1.6%	2.2%	5.7%	7.3%	10.8%
Income	0.9%	4.1%	4.2%	4.3%	4.8%
Appreciation	-2.5%	-1.8%	1.4%	2.9%	5.8%
NCREIF Property Index	-1.0%	2.7%	5.4%	6.8%	9.7%
Income	1.0%	4.4%	4.5%	4.6%	5.2%
Appreciation	-2.0%	-1.7%	0.9%	2.1%	4.4%

NCREIF Property Index Trailing One-Year Returns by Region and Property Type as of June 30, 2020



Source: NCREIF

Peak to Trough Recovery During Past Downturns



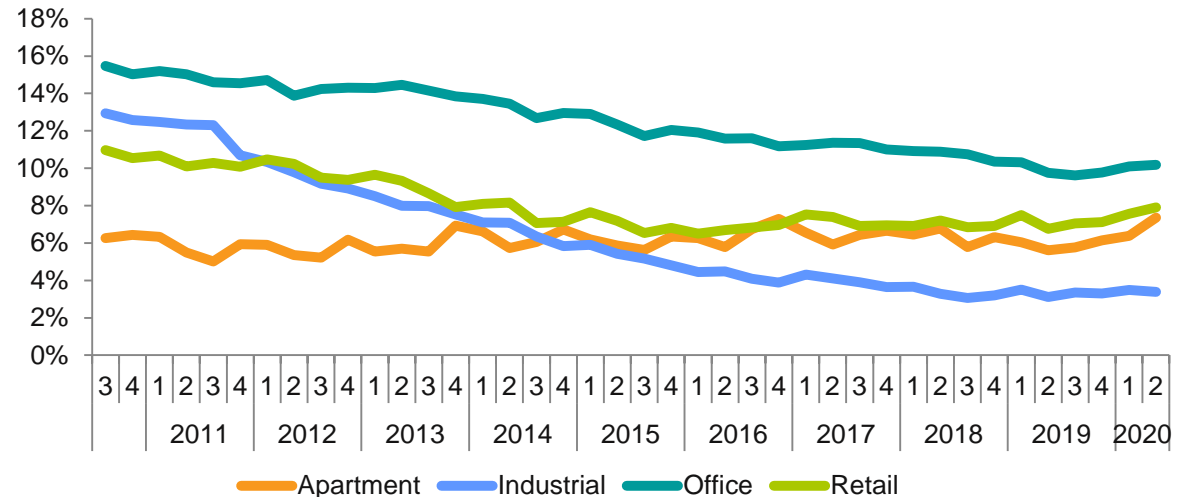
Source: NCREIF, Clarion Partners April 2020

U.S. Private Real Estate Market Trends

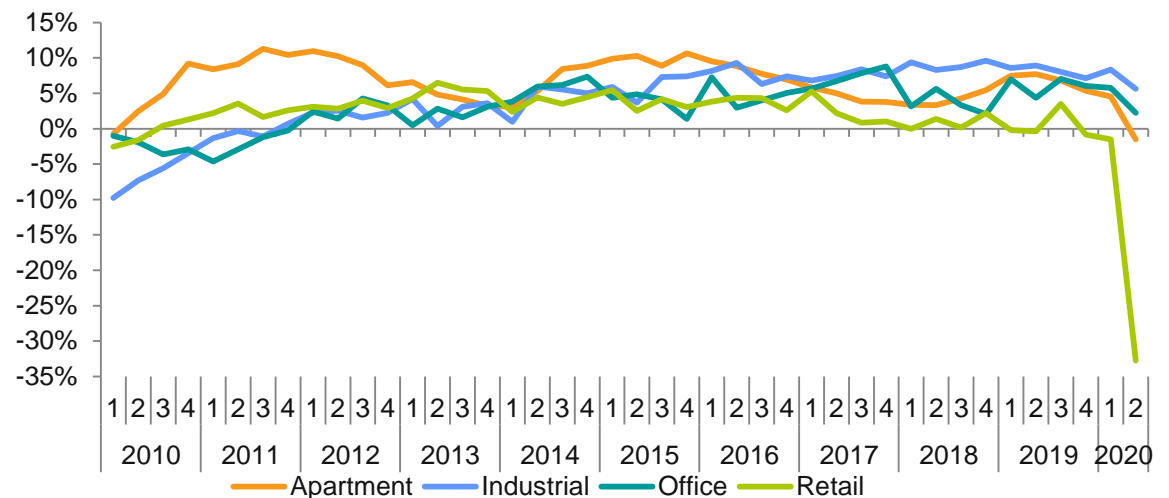
U.S. real estate fundamentals

- Vacancy rates for all property types have been or will be impacted.
- Net operating income has declined across the board, with retail experiencing the largest drop-off in over twenty years.
- Second quarter rent collections show relatively stable income throughout the quarter in the industrial, apartment, and office sectors . The retail sector remains challenged, with regional malls impacted most heavily.
- Class A/B urban apartments have remained relatively strong, followed by certain types of Industrial and Office.
- Supply was in check before the pandemic.
- Construction is limited to finishing up existing projects but has been hampered by shelter in place and material shortages.
- New construction will effectively be halted in future quarters except for pre-leased properties.

Vacancy by Property Type



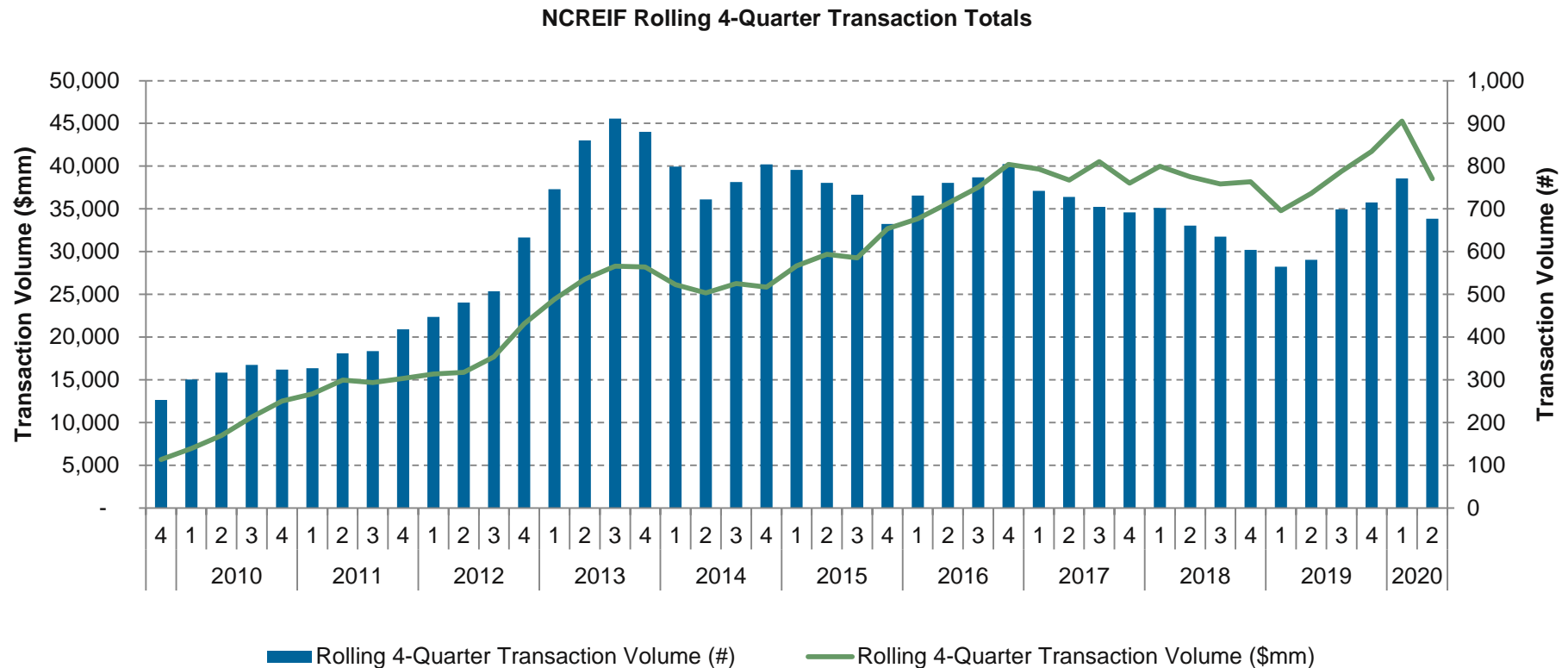
4-Quarter Rolling Net Operating Income Growth by Property Type



Source: NCREIF

U.S. Private Real Estate Market Trends

Pricing and transaction volumes have essentially halted in 2Q20

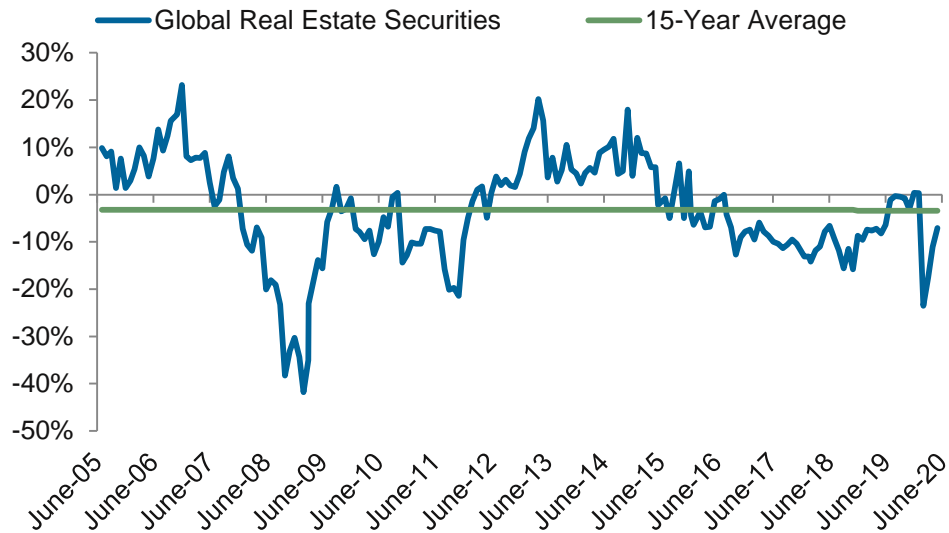


Source: NCREIF

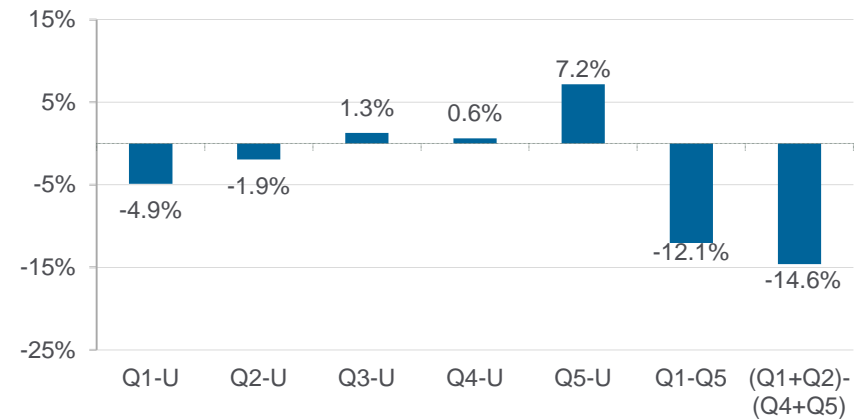
- Transaction volume has dropped off during the quarter, with the exception of industrial assets with strong credit tenants still trading at Pre-COVID levels.
- Cap rates remained steady during the quarter. The spread between cap rates and 10-year Treasuries is relatively high, leading some market participants to speculate that cap rates will not adjust much. Price discovery is happening and there are limited transactions.
- Callan believes the pandemic may cause a permanent re-pricing of risk across property types. Property types with more reliable cash flows will experience less of a change in cap rates; however, those with less reliable cash flows will see greater adjustments.

Global REIT Market Trends

Global Real Estate Securities Price to NAV



Total Return by Debt to Total Capital



Note: Q1 = Lowest Leverage, Q5 = Highest Leverage; U=Universe Mean

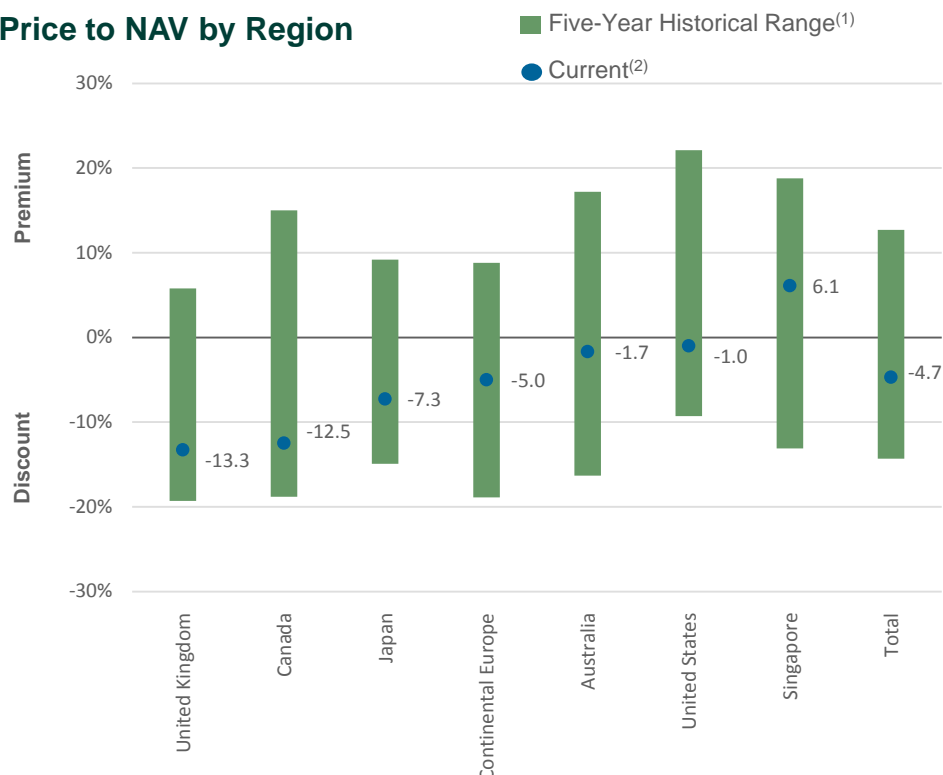
Global REITs increased but lagged the broader equity market recovery

- Global REITs underperformed in 2Q20, returning 10.3% compared to 19.4% for global equities (MSCI World).
- U.S. REITs returned 11.8% in 2Q20, lagging the S&P 500 Index, which returned 20.5%.

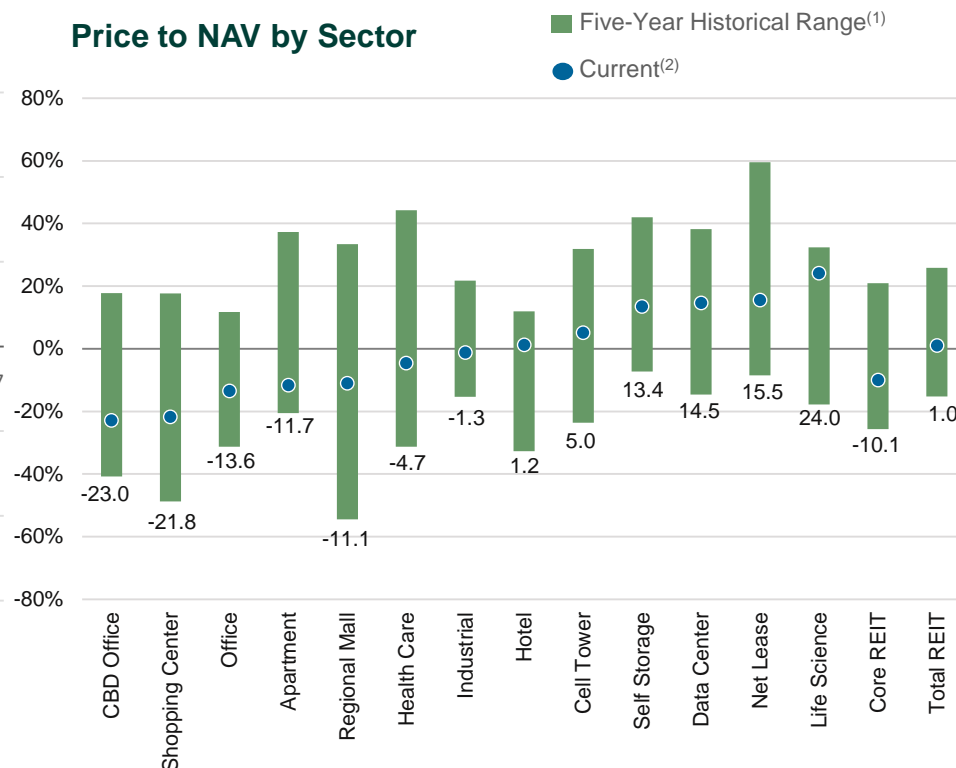
Sources: Principal Global Investors, UBS, FactSet, IBESS Q2 2020

Global REIT Market Trends

Price to NAV by Region



Price to NAV by Sector



- Globally, REITs are trading at a discount to NAV, except in Singapore. In some regions the discount is at a five-year low.
- Most property types are trading at a discount, with the exception of hotel, cell tower, self-storage, data center, net lease, life science, and Total REIT. Core REIT refers only to apartment, industrial, office, and retail, while Total REIT is inclusive of all property types noted.
- Ongoing volatility in REIT share prices offer opportunities to purchase mispriced securities, individual assets from REIT owners, and discounted debt, as well as lend to companies and/or execute take-privates of public companies.

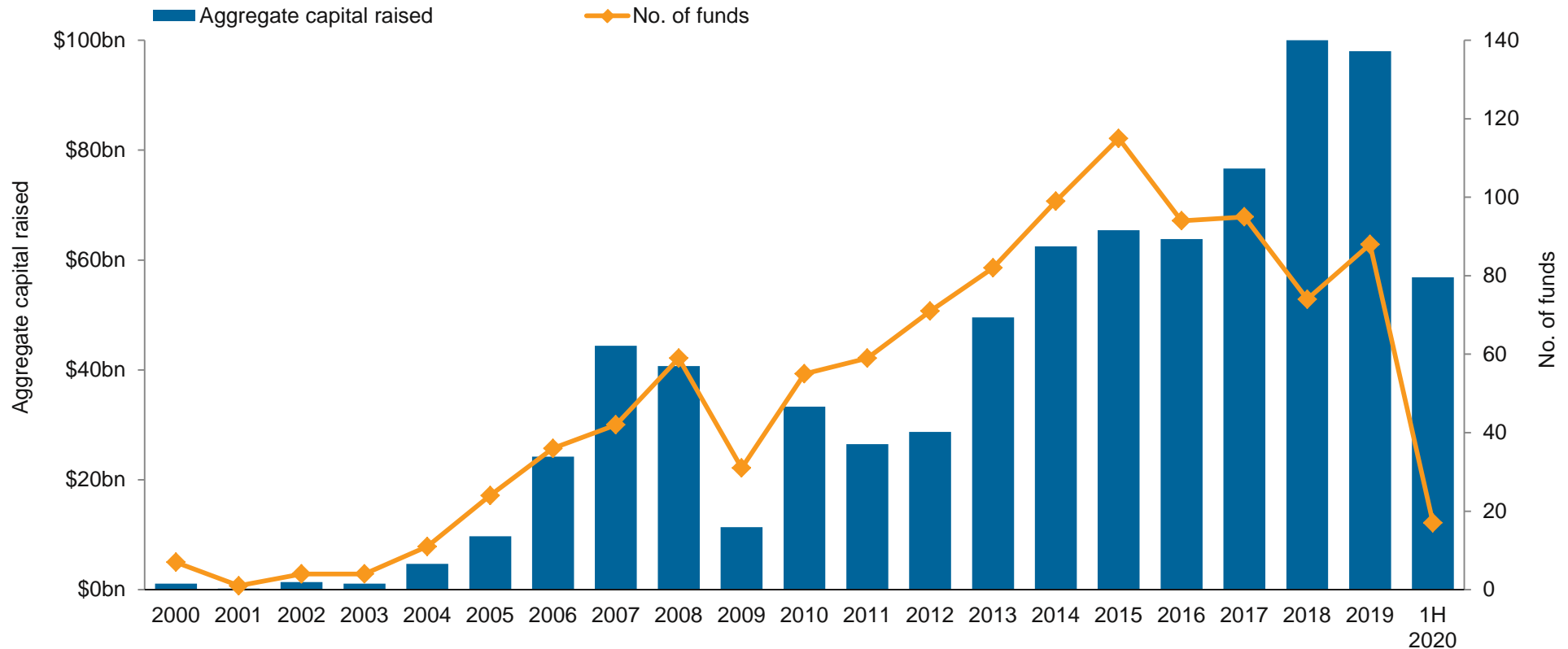
Source: Cohen & Steers

(1) NAV (Net Asset Value) seeks to calculate the net market value of all of a company's assets after subtracting liabilities.

(2) The 5-Year Historical Range begins on 7/31/2015 and ends on 6/30/2020. The range was calculated using Cohen & Steers' valuation metrics and is based on the FTSE EPRA NAREIT Developed Real Estate Index—net at the end of each month for by Region, for by sector data is based on the FTSE N All Equity REITs Index.

Infrastructure Fundraising Momentum Continued Through First Half of 2020

Mega-funds continue to dominate fundraising



Source: Preqin and Callan research

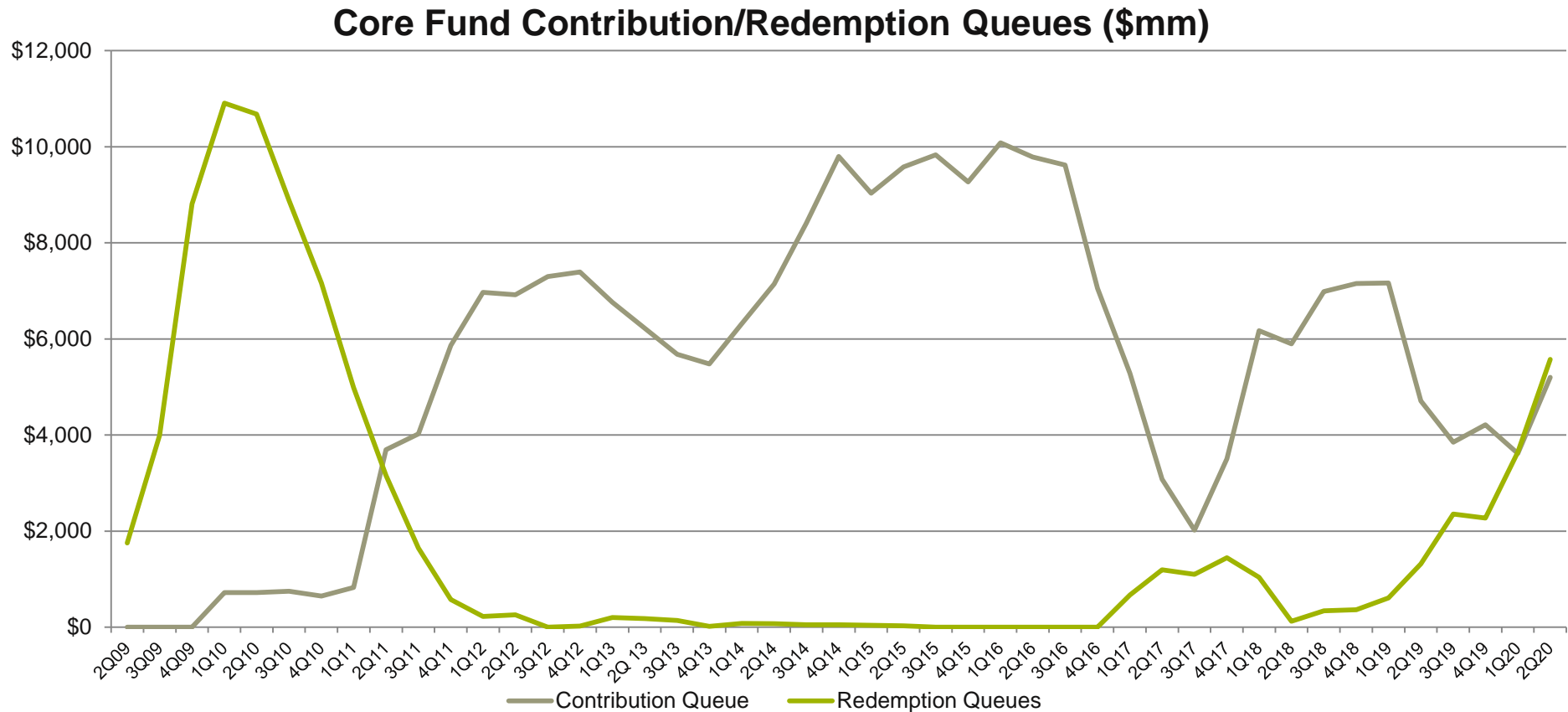
- 1Q20 was the third-largest quarter for closed-end infrastructure fundraising (\$37 billion), following 4Q19 (\$43 billion) and 3Q18 (\$38 billion). The closed-end fund market continues to expand, with infrastructure debt, emerging markets, and sector-specific strategies (e.g., communications and renewables). Investor interest in mezzanine or debt-focused funds has increased.
- Open-end funds raised significant capital in 2019, and the universe of investable funds continues to increase as the sector matures.
- In 2020 assets with guaranteed/contracted revenue or more inelastic demand patterns (e.g., renewables, telecoms, and utilities) fared better than assets with GDP/demand-based revenue (e.g. airports, seaports, midstream-related).

Entry and Exit Queues

One way to gauge demand is by the amount of capital flowing into core open-end funds.

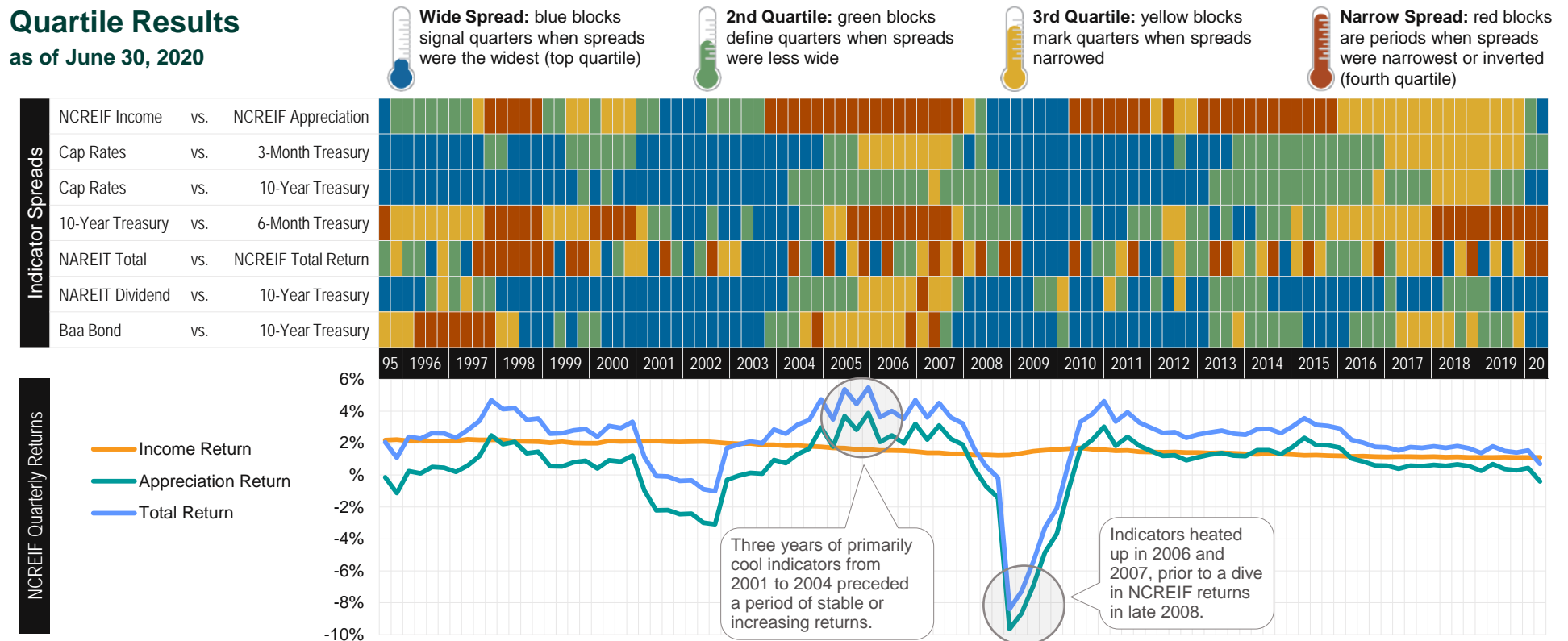
Investor appetite for core real estate is losing some steam.

- Institutional investors are reaching their target allocations.
- Concern about core pricing is a factor, along with a few underperforming managers representing a large proportion of the redemptions



Real Estate Indicators: Too Hot to Touch or Cool Enough to Handle?

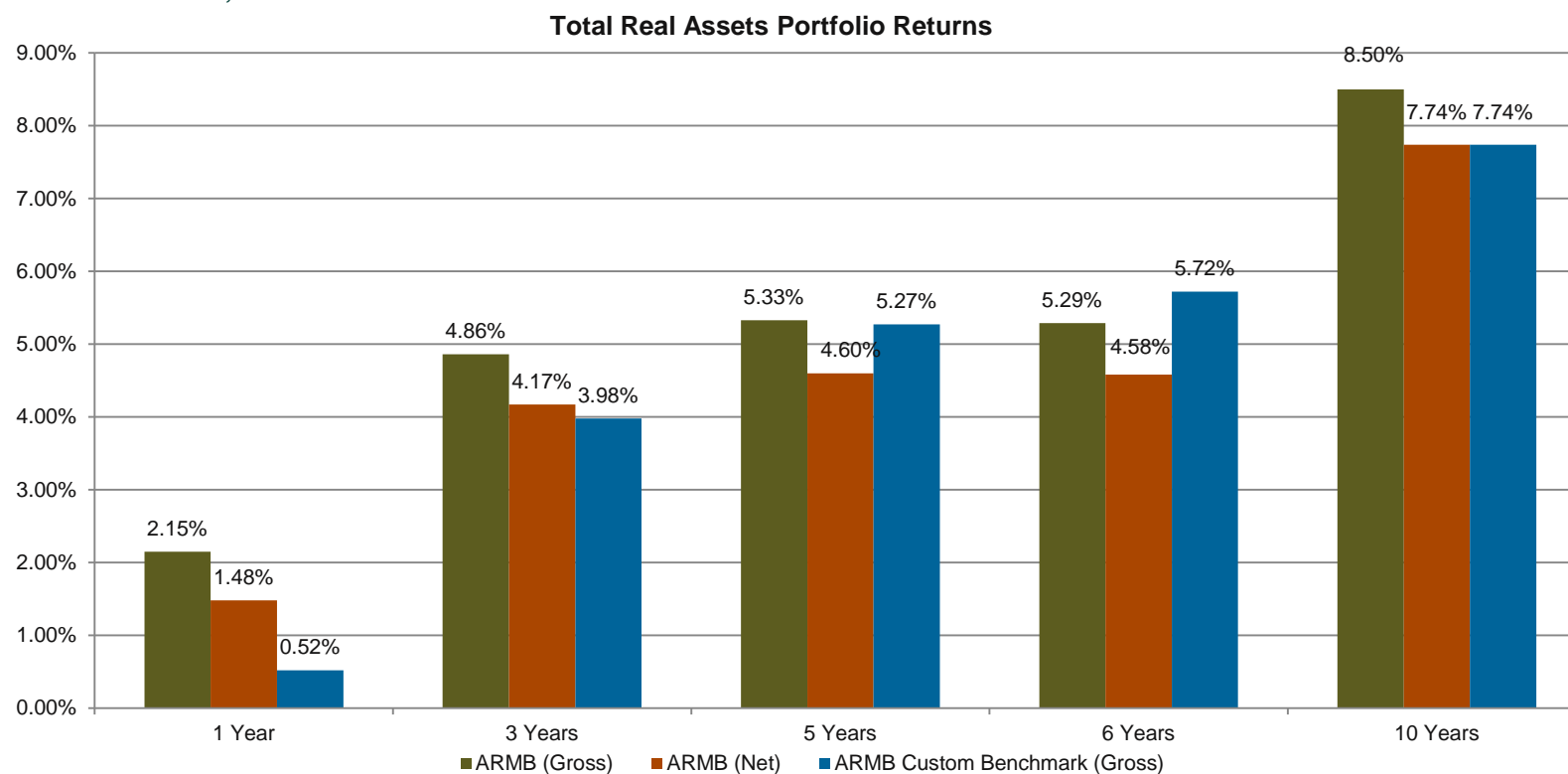
Quartile Results as of June 30, 2020



The seven indicator spreads reveal multiple instances when wide spreads (cool indicators) preceded stable or increasing performance, and narrow spreads (hot indicators) were more prevalent before declining market periods.

ARMB Real Assets Portfolio Returns

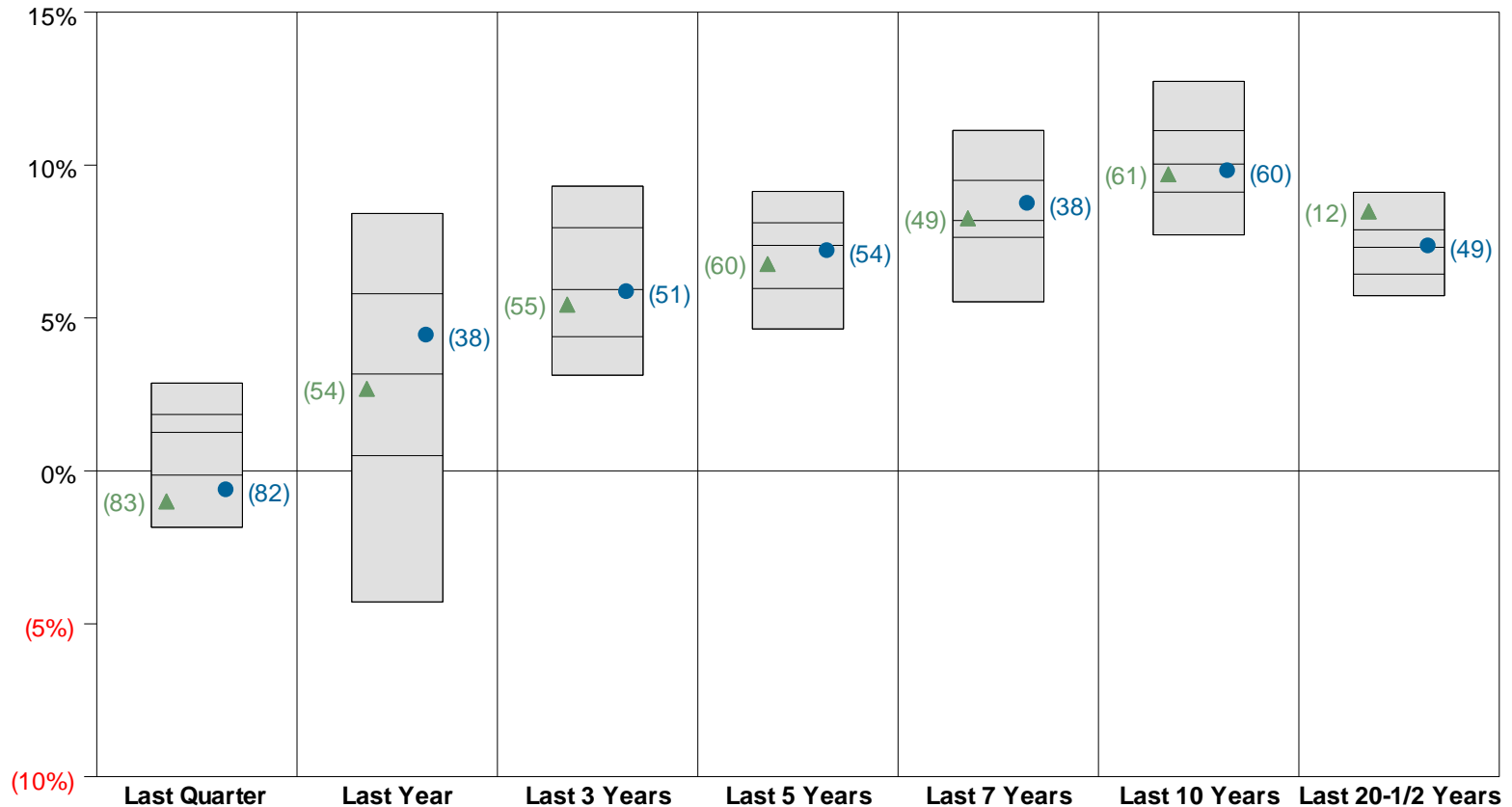
For Period Ended June 30, 2020



Sub-Sector Net Returns	1 Year	3 Years	5 Years	6 Years	10 Years
Real Estate	1.89%	4.91%	6.76%	7.58%	9.52%
Real Assets (ex. Real Estate)	1.16%	3.65%	2.97%	2.28%	6.18%
Total Real Assets Portfolio	1.45%	3.78%	4.26%	3.62%	8.31%

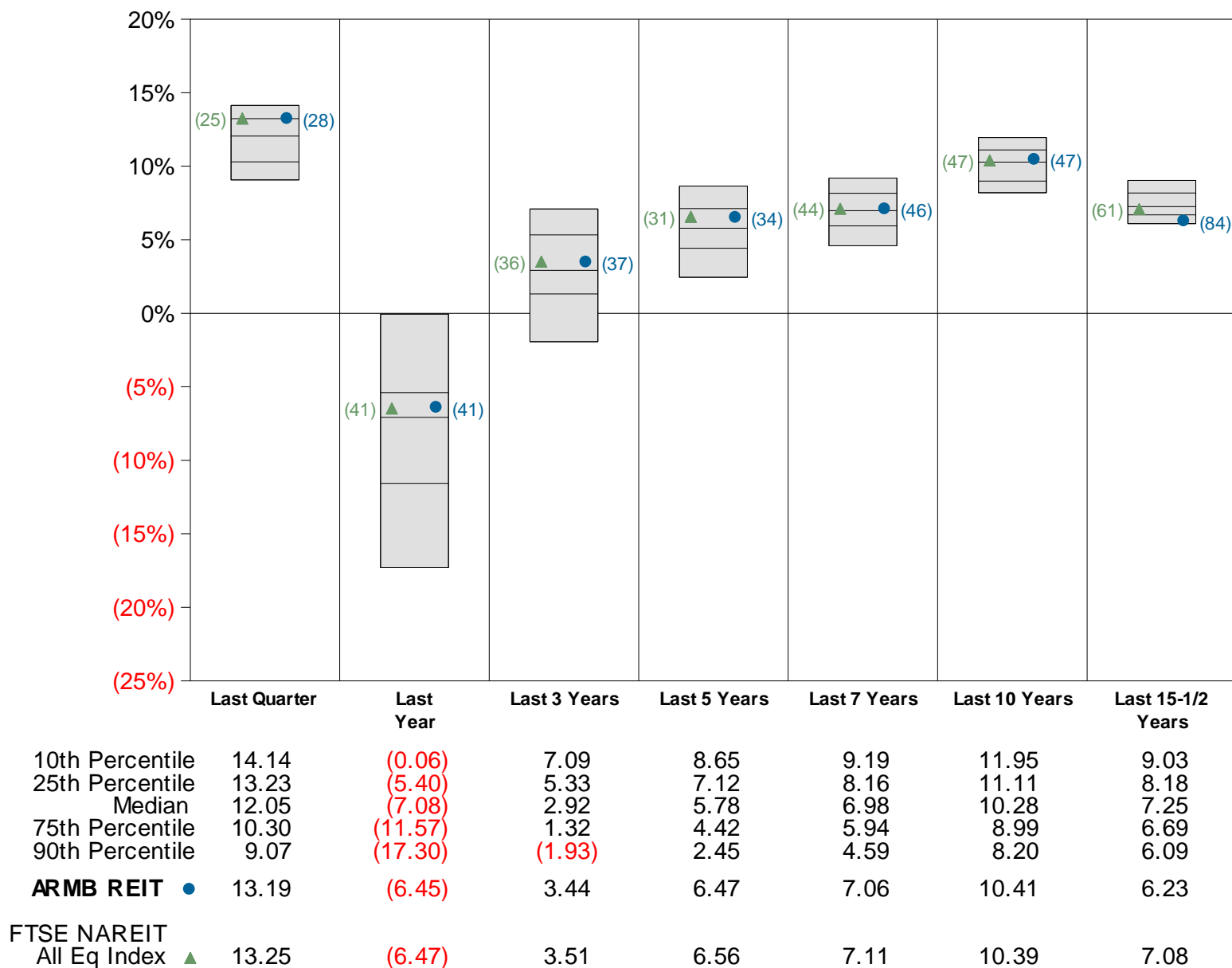
ARMB Real Assets Portfolio Returns – Private Real Estate

Performance vs Callan Total Domestic Real Estate DB



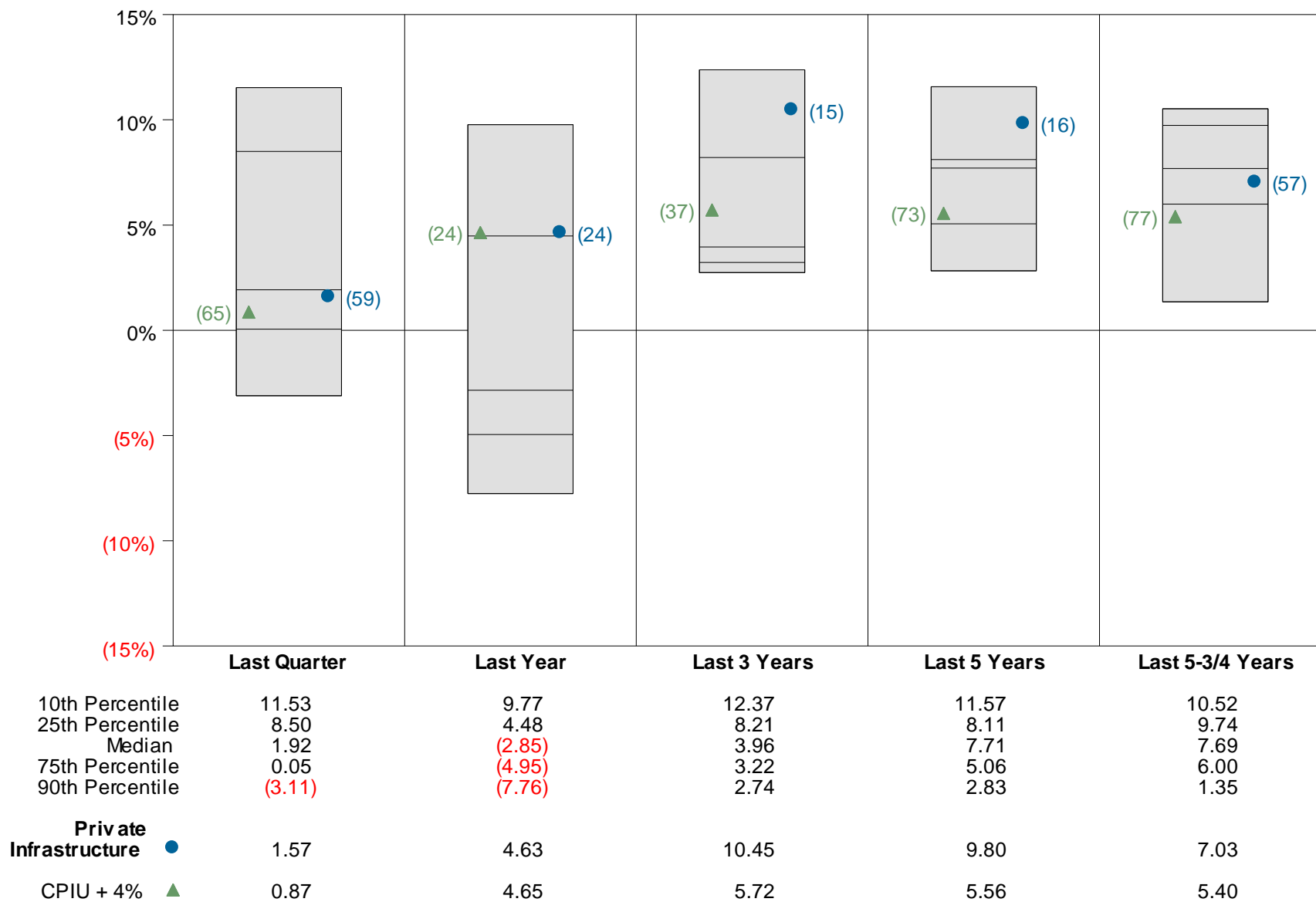
ARMB Real Assets Portfolio Returns – Public Real Estate

Performance vs Callan Real Estate REIT (Gross)

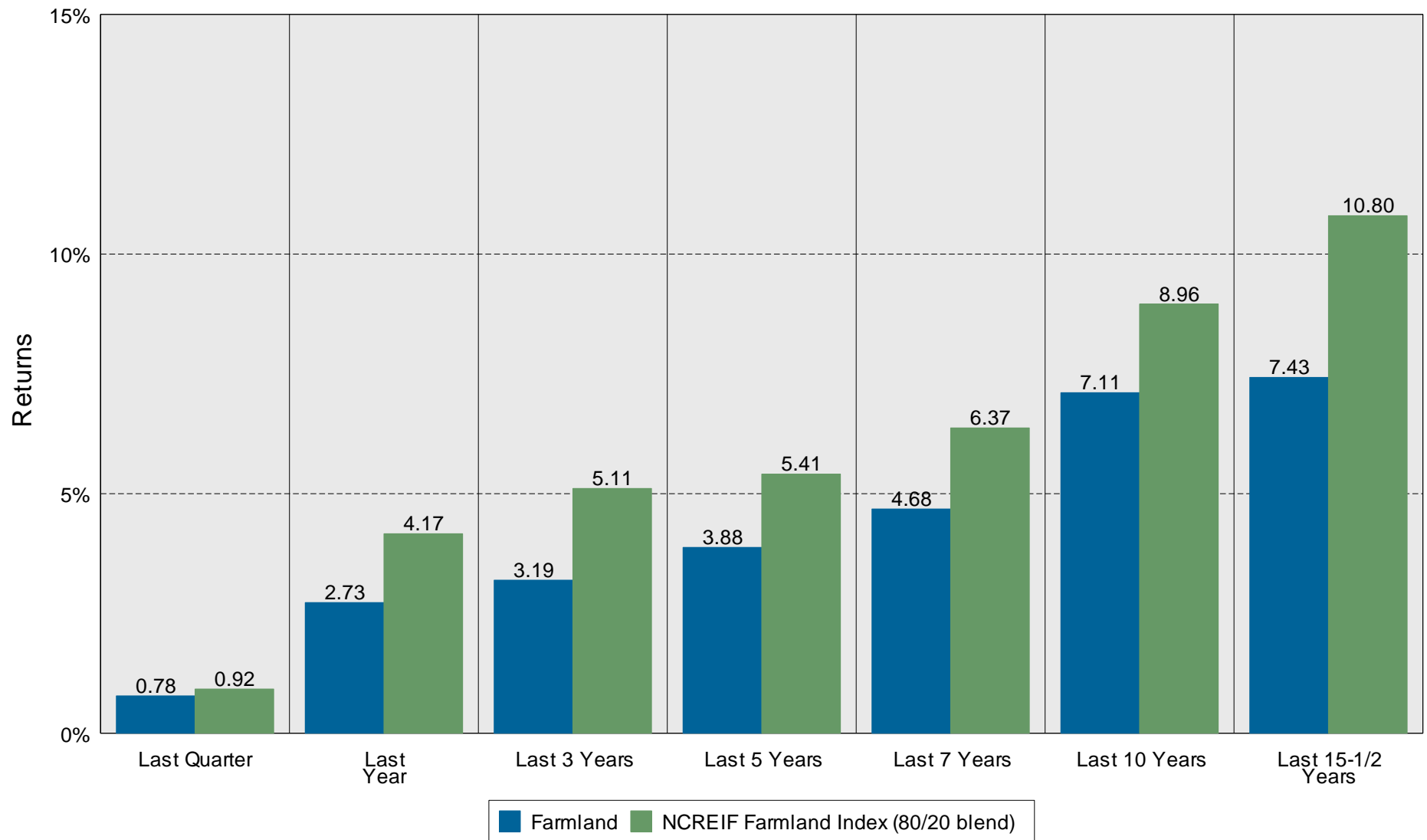


ARMB Real Assets Portfolio Returns – Infrastructure

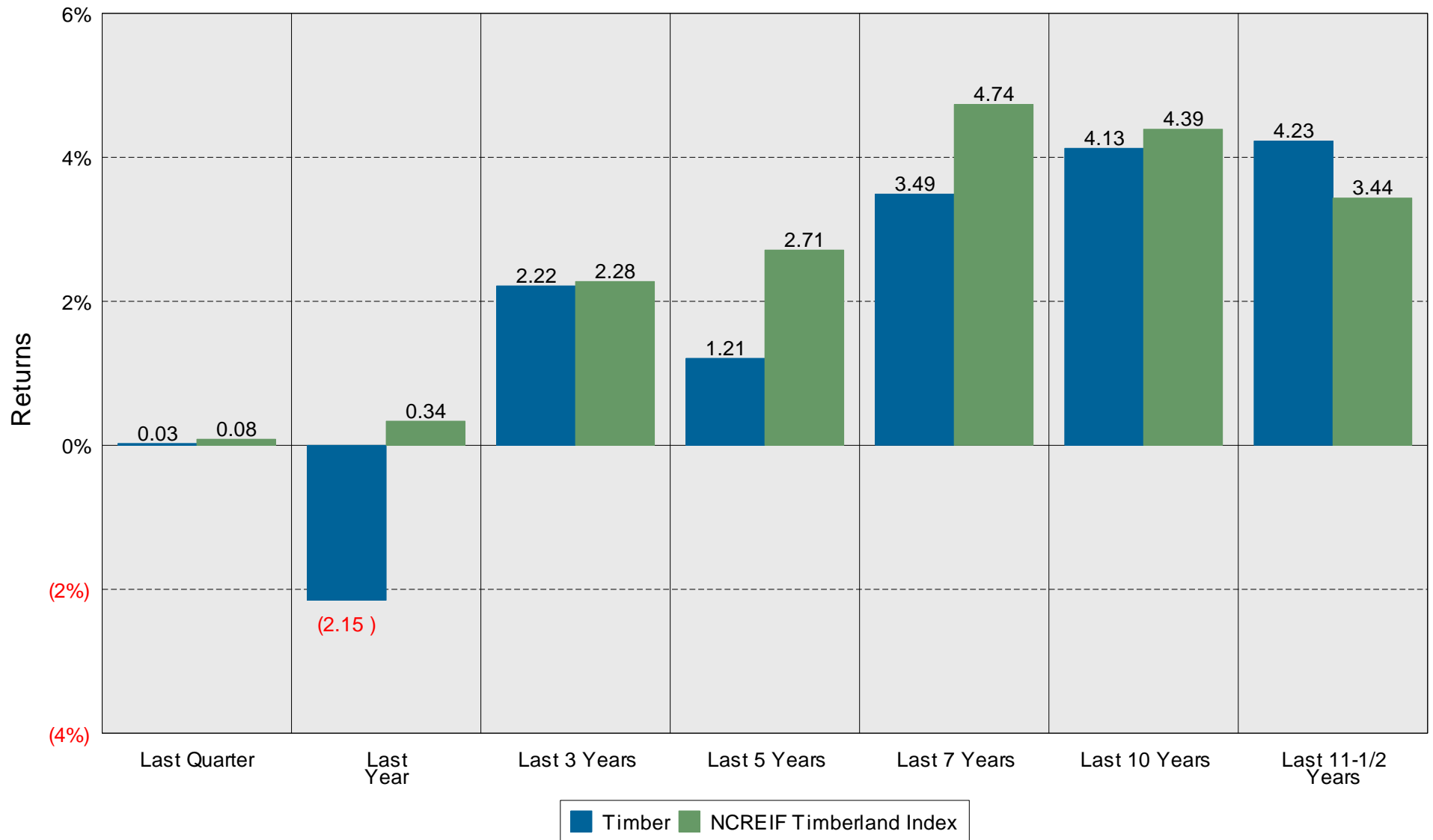
Performance vs Callan Real Estate Pvt Infrastructure (Net)



ARMB Real Assets Portfolio Returns – Farmland



ARMB Real Assets Portfolio Returns – Timber



Callan

ARMB Real Assets Strategic Plan Review

Objective of the Real Assets Strategic Plan

The goal of this exercise is to identify the optimal mix of real assets that help achieve the role of real assets while taking into account practicality and implementation constraints

Role of Real Assets Restated

Objective:

The Alaska Retirement Management Board (ARMB) will invest in real estate with the goals of portfolio diversification and attaining the optimum return on the portfolio, consistent with the assumption of prudent risk and safety of principal.

Based on Callan's analysis of the ARMB total portfolio, including characteristics such as the size of the program, liquidity and yield needs, we believe this objective is consistent with the role the entire real assets portfolio should play within the context of the broader portfolio.

Return Expectations:

Over rolling six- year periods, the ARMB real estate investment portfolio is expected to generate a net-of-fee total return between public equities and fixed-income.

Based on Callan's long-term capital markets return forecast for the components of the real assets program, we believe the return expectations for the portfolio are reasonable and obtainable

2019 Strategic Plan Revisited

In 2019 ARMB Staff and Callan conducted a comprehensive analysis of the ARMB Real Assets portfolio, factoring in considerations including the outlook for the various components of the real assets portfolio, the optimized role they play within the broader portfolio, market opportunities, and fees.

The following is a summary of the approved action items and the status of their implementation.

Category	Action	Status
Core Real Estate Portfolio	Evaluate existing separate account managers to determine the role and position of their portfolio as they fit within the broader real assets program's objectives and goals Based on the evaluation, recommend if the separate accounts should remain in place or be liquidated.	In June 2020 it was recommended and approved to maintain the UBS and Sentinel Separate Accounts. Additionally, increased allocations to Sentinel and the BlackRock Core Fund were approved.
Farmland Portfolio	Evaluate existing separate account managers (Hancock and UBS) to determine the role and position of their portfolio as they fit within the broader real asset program's objectives and goals. Evaluate their experience and ability to pursue permanent crop investments.	In June 2020 it was recommended and approved to consolidate the separate account to with UBS Agrivest. Additionally it was determined that UBS Agrivest is suitable to invest in both row and permanent crops.
REIT Portfolio	Strategically increase REIT exposure as capital from other components which are above their targets is returned.	In process.
Infrastructure Portfolio	Review infrastructure portfolio. Activate dividend option from both IFM and JPMorgan. Use these distributions to rebalance and fund other components of the real assets program as necessary. (i.e. REITs)	It was determined to maintain exposure in both fund given their complementary characteristics. ARMB staff will look to rebalance the positions over time to improve diversification. The IFM dividend option has been activated. The JPM dividend will be reinvested to increase exposure.
Timber Portfolio	Review existing separate accounts (Hancock and TIR). Instruct managers to provide comprehensive timberland outlook and propose strategies to increase returns.	In June 2020 it was recommended to consolidate accounts with TIR.
Non-Core Real Estate	Discontinue Non-Core Real Estate exposure and reinvest returned capital into REITs.	In process.

ARMB Asset Allocation Target

ARMB AssetMax Model Considerations

- The below target mix was adopted in 2019 as the result of an asset allocation study.
- The model was revisited in 2020, which resulted in a recommendation to maintain the allocation targets.

Portfolio Component	Allocation Target
Core Real Estate	35%
REITs	15%
Farmland	25%
Timber	10%
Infrastructure	15%
Totals	100%
10 Yr. Geometric Mean Return	6.79%
20 Yr. Geometric Mean Return	6.78%
Projected Standard Deviation	14.28%

ARMB Real Assets Allocation

	Target Weight	Exposure	Current Weight	Variance	Percent of Overall Portfolio
Core Real Estate	35.0%	\$1,249.57	34.56%	-0.44%	4.85%
Farmland	25.0%	\$884.55	24.46%	-0.54%	3.44%
Private Infrastructure	15.0%	\$660.71	18.27%	+3.27%	2.57%
Timber	10.0%	\$356.96	9.87%	-0.13%	1.39%
REITs	15.0%	\$300.96	8.32%	-6.68%	1.17%
Energy	-	\$66.57	1.84%	+1.84%	0.26%
Non-Core Real Estate	-	\$96.62	2.67%	+2.67%	0.38%
MLPs	-	-	-	-	-
Listed Infrastructure	-	-	-	-	-
Total Real Assets	13.0%	\$3,615.90	100.00%		14.05%
Total Fund		\$23,785.90			

Implementation Considerations:

- Non-core real estate and Energy, which have been eliminated from the target allocation, are illiquid and both will take a few years to fully wind down. As the energy and non-core real estate positions burn off, distributed proceeds should continue to be reinvested in REITs, to which the plan remains under-allocated
- ARMB is modestly overweight to private infrastructure (+3.27%). The dividend reinvestment option can be toggled on/off to moderate this exposure, but a partial-redemption for rebalancing purposes is not necessary. Should the need arise, increasing the allocation at a later date would prove challenging given the high contribution queues inherent in the current infrastructure lineup
- With the exception of REITs, the remainder of the portfolio remains close to the target allocation

2020 Strategic Plan Recommendation - Core Real Estate Debt Consideration

During the evaluation of the real estate separate account portfolio the topic of debt utilization became a focus

- It is standard practice for core real estate investors to use modest levels of debt when purchasing assets
- Debt is predominately implemented at the property-level and not at the portfolio-level, with fixed-rate debt utilized more often than floating-rate debt
- While the specific amount of debt used for each investment varies, it is often influenced by the property type, prevailing interest rates and anticipated holding periods
- On average, core managers tend to maintain an overall average portfolio debt ratio of less than 30%, with the current ODCE average at 22.3%

ARMB's core real estate fund managers currently have the following leverage positions:

- BlackRock U.S. Core Property Fund: 22.3%
 - J.P. Morgan Strategic Property Fund: 24.9%
 - UBS Trumbull Property Fund: 18.2%
- While ARMB's core funds can and do utilize leverage, the core separate accounts cannot, based upon legacy policies
 - ARMB's separate account managers believe this places them at a disadvantage, particularly during low-interest rate environments
 - ARMB Staff and Callan understand that debt utilization may increase risk, but we also recognize that a modest amount of debt can be beneficial by enhancing returns and increasing diversification
 - We believe permitting the existing core real estate separate account managers the flexibility to use leverage, up to a limit of 30% LTV at the account-level and 65% LTV at the property-level, should be considered

Recommendation Summary

- Maintain sub-targets for the real assets program, as follows:
 - Core Real Estate: 35%
 - Farmland: 25%
 - REITs: 15%
 - Private Infrastructure: 15%
 - Timber: 10%, with a range from 0% – 10%
- Provide separate account managers the ability to utilize debt within their portfolios (30% limit at the account-level)
- Continue implementation of 2019 strategic plan objectives

Disclaimers

This report is for informational purposes only and should not be construed as legal or tax advice on any matter. Any decision you make on the basis of this content is your sole responsibility. You should consult with legal and tax advisers before applying any of this information to your particular situation.

This report may consist of statements of opinion, which are made as of the date they are expressed and are not statements of fact.

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Past performance is no guarantee of future results.

The statements made herein may include forward-looking statements regarding future results. The forward-looking statements herein: (i) are best estimations consistent with the information available as of the date hereof and (ii) involve known and unknown risks and uncertainties such that actual results may differ materially from these statements. There is no obligation to update or alter any forward-looking statement, whether as a result of new information, future events or otherwise. Undue reliance should not be placed on forward-looking statements.

**STATE OF ALASKA
DEPARTMENT OF REVENUE**

ALASKA RETIREMENT MANAGEMENT BOARD

**Real Assets
Fiscal Year 2021 Annual Plan**

September 2020

**Steve Sikes, CFA, CPA
Manager of Opportunistic Strategies & Real Assets**

Alaska Retirement Management Board

Real Assets Portfolio

Portfolio Role: Diversify the portfolio while providing attractive total returns, inflation sensitivity, and income.

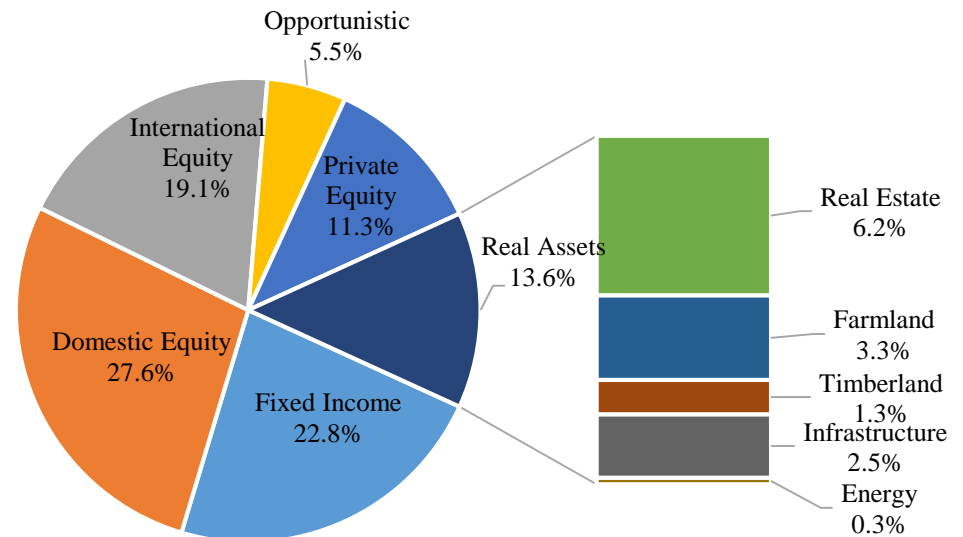
Strategy: Seek to establish exposure to real assets through both public and private securities in core, stabilized investments.

Return Expectations: Long-term performance expectations for Real Assets are to have net-of-fee performance between public equities and fixed income over rolling 6-year periods.

Benchmark: At the asset class level, a custom benchmark of 37.5% NFI-ODCE, 10% FTSE NAREIT Equity Index, 25% NCREIF Farmland Index, 10% NCREIF Timberland Index, 17.5% CPI+4 is employed.

Structure: The Real Assets portfolio is primarily a collection of private, illiquid assets requiring long-term holding periods. The portfolio also includes publicly traded REITs.

ARMB Actual Asset Allocation
June 30, 2020



Real Assets represent \$3.6 billion of ARMB's \$26.5 billion of total defined benefit assets as of June 30, 2020.

Alaska Retirement Management Board

Portfolio Actual Weights vs. Targets:

<i>as of June 30, 2020</i>	Actual	Target	Difference
Core Real Estate	34.9%	35.0%	-0.1%
Non-Core Real Estate	2.6%	0.0%	2.6%
REITS	8.3%	15.0%	-6.7%
Farmland	24.3%	25.0%	-0.7%
Timberland	9.9%	10.0%	-0.1%
Infrastructure	18.2%	15.0%	3.2%
Total Real Assets	13.6%	13.0%	0.6%

- In 2019, Callan assisted staff in reviewing the long-term asset class sector target allocations.
- The Real Assets portfolio is largely in-line with targets. Underweight in REITs is partially offset against overweight in non-core real estate.

Alaska Retirement Management Board

Performance vs. Benchmarks:

- Real Assets portfolio returned 1.48% net in Fiscal Year 2020 which outperformed the benchmark return of .52%.
- In general, core strategies have held up well so far in light of pandemic-induced recession with drawdowns in some of the higher risk real estate strategies.
- Longer-term performance is consistent with objective of performance, between public equities and fixed income.
- Given the diversifying characteristics of asset class, real assets also achieved its objective of reducing performance volatility for the broader portfolio.

<i>as of 6/30/2020 (net of fees)</i>	Qtr	1yr	6yr	10yr
Core	-0.96%	4.11%	7.69%	9.50%
NCREIF ODCE	-1.75%	1.33%	7.49%	9.78%
Non-Core	3.48%	7.90%	11.04%	11.50%
NCREIF ODCE +1.5%	-1.36%	2.83%	8.99%	11.28%
REIT	13.19%	-6.45%	6.11%	10.41%
FTSE NAREIT All Equity	13.25%	-6.47%	6.15%	10.39%
Farmland	0.78%	2.73%	4.13%	7.11%
NCREIF Farmland (80/20 Blend)	0.92%	4.17%	5.46%	8.96%
Timberland	0.03%	-2.15%	2.37%	4.13%
NCREIF Timberland	0.08%	0.34%	3.89%	4.39%
Infrastructure (Private)	1.57%	4.63%	6.72%	-
CPI+4%	0.87%	4.65%	5.32%	-
ARMB Real Assets	1.13%	1.48%	4.58%	7.74%
ARMB Real Assets Target	0.98%	0.52%	5.72%	7.74%
Russell 3000	22.03%	6.53%	9.57%	13.72%
Bloomberg Barclays Aggregate	2.90%	8.74%	3.89%	3.82%

Source: Callan Real Assets Quarterly Report June 30, 2020

Alaska Retirement Management Board

Status of Implementation of Board-Approved Initiatives

- Real estate open-end fund positions continue to be consolidated into the BlackRock Core Property Fund.
 - Implementation will likely be protracted over 12 to 18 months.
- Sentinel Real Estate Advisors were allocated an additional \$125 million.
 - Implementation is likely 12 months+.
- Farmland being consolidated from two accounts to one account with UBS Farmland LLC.
 - Expect transition to be complete by October 1.
- Timberland being consolidated from two accounts to one account with TIR.
 - Expect transition to be complete by October 1.
- These actions were approved by ARMB at the June meeting aimed at achieving the following goals:
 - 1) refine strategic focus of the portfolio;
 - 2) simplify account structure;
 - 3) calibrate portfolio size toward longer term strategic weights;
 - 4) reduce fees; and,
 - 5) reduce operational and administrative cost.

Alaska Retirement Management Board

Real Estate - Current Portfolio

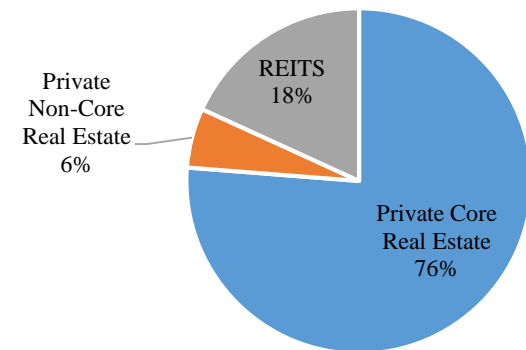
- Two core separate account managers make investments on a discretionary basis within the parameters defined by ARMB's guidelines and annual investment plan up to approved allocations. These investments represent 49% of the real estate portfolio and are currently comprised of 15 assets within the apartment, industrial, office, and retail sectors across the U.S. ARMB owns 100% interest in these assets.
- Three core open-end commingled funds make investments on a discretionary basis according to each fund's strategy. These funds represent 27% of the real estate portfolio and offer well diversified exposure across asset types, markets, and size. ARMB owns units in these funds along with other institutional investors.
- Fund investments with three non-core commingled fund managers represent the majority of non-core real estate strategies. These investments represent 6% of the real estate portfolio.
- The remaining 18% of the real estate portfolio is a passive publicly traded REIT stock portfolio invested internally by staff.

Real Estate Portfolio

June 30, 2020

- Net Asset Value: \$1.26 billion
- Number of Properties: 15 + commingled fund interests
- Core Structure: 2 separate accounts, 3 open-end funds
- Non-Core Structure: 14 commingled funds

ARMB Real Estate weights as of June 30, 2020



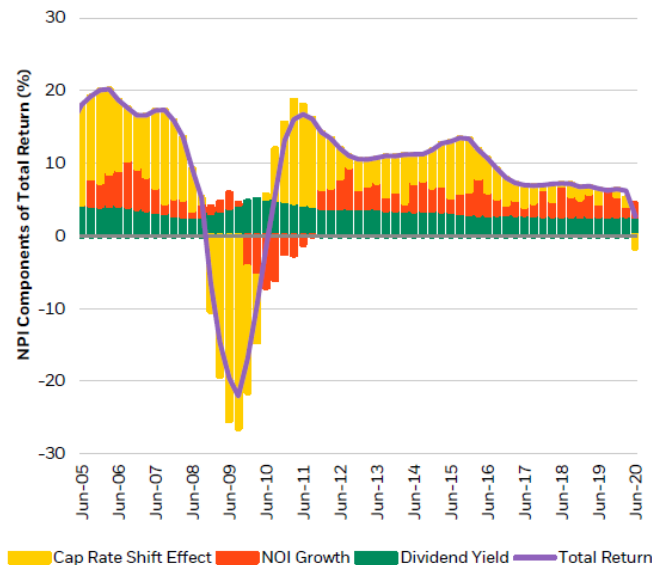
Alaska Retirement Management Board

Real Estate forecast reflects very large disparity between sectors and an acceleration of pre-existing trends.

- Malls negatively impacted by ecommerce trends and stay at home environment.
- Industrial sector benefits from these same trends.
- Apartments resilient but urban locations and work from home pose threats.
- Office is a big “?”.
- All sectors require employment and the economy to recover.

U.S. unlevered real estate returns driven by income growth

Components of U.S. real estate returns (unlevered)¹



Forecast risk-return profile by sector (2020-2022)²

Sector	Current Cap Rate	Dividend Pay-Out Ratio	Dividend Yield	NOI Growth	Cap Rate Shift Effect	Total Return	Exit Cap Rate
Industrial	4.6	x 68.5	= 3.0	+ 3.1	+ 1.9	= 8.0	4.3
Apartment	4.2	x 75.5	= 2.9	+ 1.0	+ 0.3	= 4.5	4.1
Office	4.5	x 59.9	= 2.9	+ -2.5	+ 0.0	= -0.4	4.6
Retail	4.6	x 70.0	= 3.4	+ -3.8	+ -3.0	= -3.4	5.1
NPI	4.5	x 67.3	= 3.0	+ -1.1	+ -0.3	= 1.4	4.6

1. Source: BlackRock, NCREIF; as of 6/30/2020

2. Source: BlackRock; as of June 2020

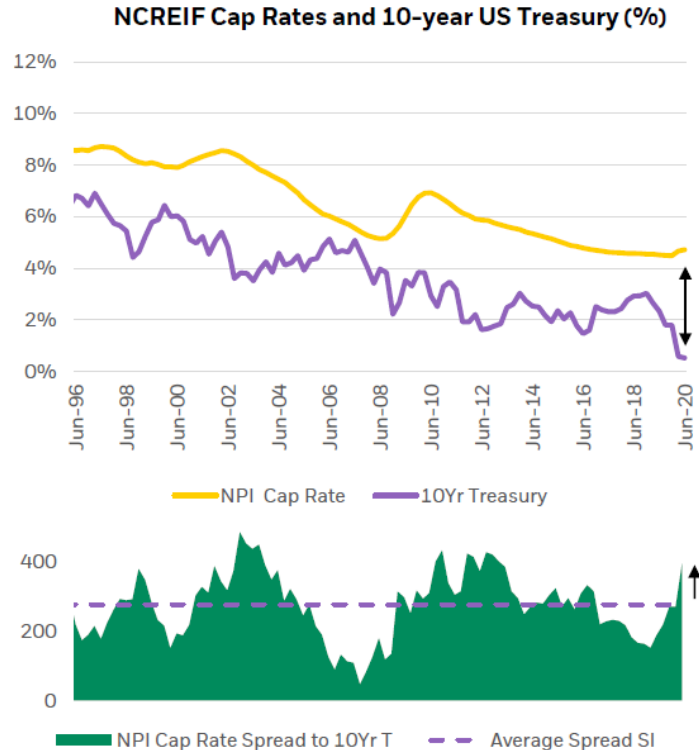
Alaska Retirement Management Board

NCREIF Property Index cap rate yield spread is high compared to U.S. Treasury 10 year yields. The yield advantage is an important element supporting real estate valuations and total return.

Capital markets supportive of overall real estate valuations

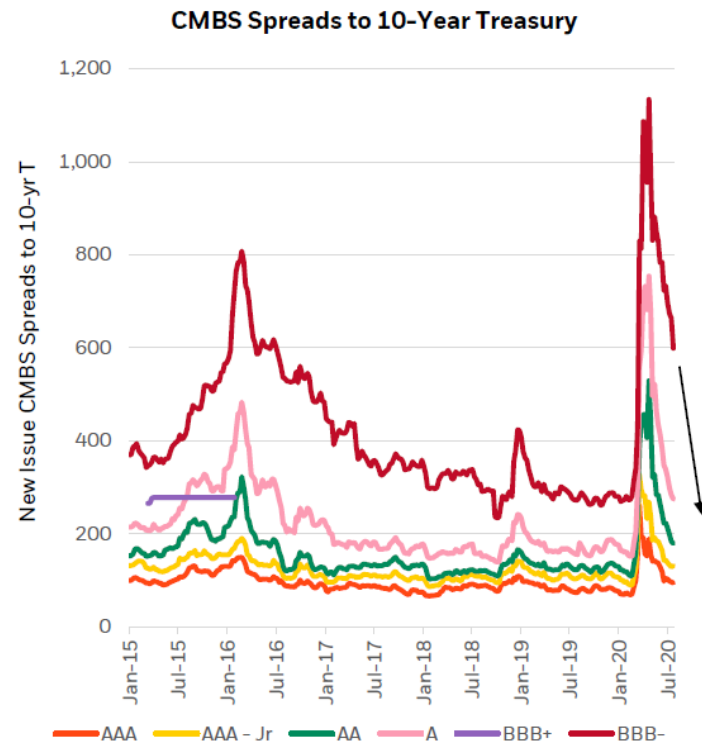
Combination of improving economics and significant policy support are providing a more constructive environment for real estate valuations.

Cap rate spreads are near all time highs



Source: NCREIF, Bloomberg; as of June 30, 2020, spreads since inception (1979)

RE Debt market credit spreads retightening



Source: Bloomberg; CMBS Cash Spreads to 10 year Treasury rate, as of July 27, 2020

Alaska Retirement Management Board

Sentinel Real Estate Portfolio

- Sentinel is a vertically integrated manager focusing on core properties in secondary and tertiary markets and has been an investment manager for ARMB since 1984.
- The strategy of the account is to focus on well-located, middle income, cash flowing real estate in high growth and supply constrained markets. Targeted properties are in areas with good schools, neighborhood retail, entertainment amenities, and close to employment centers. The strategy focuses on secondary and tertiary markets where yields are higher than gateway urban markets.

Sentinel Real Estate Portfolio June 30, 2020

- Net Asset Value: \$176 million
- Remaining commitment: \$125 million
- Number of Properties: 3
- Average Physical Occupancy: 91.2%
- June 30 annualized income return (net): 4.60%



Albuquerque, New Mexico



Folsom, California



Tampa, Florida

Alaska Retirement Management Board

Sentinel Real Estate Portfolio – COVID Impact

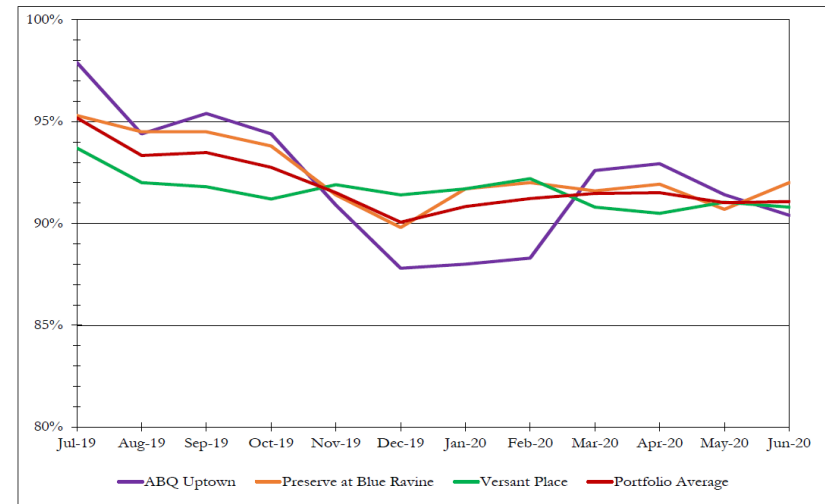
Portfolio Impact:

- New leasing activity came to a standstill in March due to lockdown protocols. Now improving.
- ARMB portfolio cash rent collections at 98.6% for quarter end June 30.
- Physical occupancy is down from last year but stable now.

Asset Management Response:

- Clubhouses and common area amenities closed.
- Social distancing and staggered hours for staff.
- Virtual leasing through video tours.
- Late fees and termination fees waived.
- Evictions for non-payment postponed.
- Rental rates for renewals frozen at existing levels.
- Payment plan options offered to tenants with hardships.

ARMB Separate Account
Average Monthly Physical Occupancy



Alaska Retirement Management Board

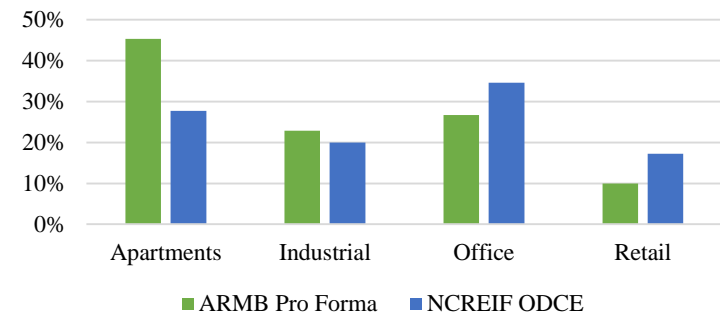
Real Estate Portfolio – Strategy

- UBS and Sentinel separate accounts will continue to anchor the core portfolio. ARMB has 100% ownership and control of properties which is beneficial in managing strategy and liquidity. Performance relative to NCREIF ODCE has been strong on both a total return basis and an income basis over time.
- Exposure to larger properties and urban markets will be through the BlackRock Core Property Fund as the portfolio transitions from legacy open-end funds.

as of June 30, 2020	1 Year		5 year		10 year		15 year	
	Income	Total	Income	Total	Income	Total	Income	Total
UBS Separate Account (net)	4.33%	6.25%	4.34%	9.21%	4.71%	11.59%	5.11%	8.60%
Sentinal Separate Account (net)	4.60%	3.54%	4.85%	8.38%	4.90%	10.20%	5.08%	7.66%
BlackRock Core Property Fund (net)	3.88%	3.84%	3.77%	7.99%	4.11%	10.57%	3.85%	4.68%
NCREIF ODCE Value Wt (net)	3.17%	1.33%	3.38%	6.35%	3.86%	9.78%	4.15%	6.02%
<i>Source: Callan and BlackRock (5,10,15yr BlackRock numbers reflect general fund returns and not ARMB results)</i>								

- Portfolio is expected to be overweight Apartments and Industrial which is attractive in the current economic environment and stage of the business cycle.

ARMB Pro Forma Core Portfolio
vs. NCREIF ODCE Index



Alaska Retirement Management Board

Real Estate Portfolio – Fiscal Year 2021 Plan

Core

- Stay the course with current transition with primary portfolio building blocks of UBS and Sentinel separate accounts and BlackRock open-end fund.
- Increase UBS allocation by \$20 million for capital expenditure items.
- Expand separate account guidelines to allow prudent use of leverage:
 - Maximum 30% LTV at the portfolio level. Consistent with ODCE core fund levels.
 - Maximum 65% LTV at the property level.
 - Non-recourse to ARMB.
 - Why?
 - Enhance returns from interest rate differential. Borrowing rates are extremely low for quality real estate.
 - Improved diversification – spread existing equity exposure across more properties.
 - Take advantage of full breadth of expertise and experience of investment managers to generate excess return.
 - NCREIF ODCE benchmark reflects leveraged core strategies.

Non-Core

- Existing strategies provide some exposure to current dislocation opportunities. No target weight but will consider strategies opportunistically as return enhancer to portfolio.

REITS

- Maintain investment in passive diversified approach. Research ways to introduce alpha sources that can improve risk-adjusted returns over time.

Alaska Retirement Management Board

Farmland - Current Portfolio

- Investment manager makes investments on a discretionary basis within the parameters defined by the ARMB's guidelines and annual investment plan up to approved allocations.
- Portfolio is comprised of U.S. farmland. Strategy is a leased-based approach targeting both row crops and permanent crops. ARMB owns 100% of the assets
- The farmland portfolio target benchmark is the NCREIF Farmland Index reweighted to reflect 60% row crops and 40% permanent crops.

Farmland Portfolio Profile June 30, 2020

- Total Net Asset Value: \$851.8 million
- Number of Properties: 91
- Total acres: 152,885
- Number of states where investments are located: 15
- Row/Permanent Crop Distribution by MV: 86%/14%



Alaska Retirement Management Board

Farmland Portfolio – Fiscal Year 2021 Plan

- Stay the course with current transition and with separate account strategy with UBS Farmland Investors, LLC.
- ARMB has had \$100 million of additional allocation in the queue with UBS for several years. Rotation cycle is now here. Likely to take three to four years to deploy.
- Adjust crop type weights back to 80% row and 20% permanent. Why?
 - Superior total return per unit of risk as measured by standard deviation.
 - Additional redevelopment time of permanent crops not reflected in returns.
 - 80/20 is consistent with UBS Farmland view of optimal portfolio weights and opportunity set.
 - Reflects reasonable target given current portfolio weights of 86/14.

Return Component:	90-10	80-20	70-30	60-40	50-50	Leased	
						Annual	Perm
Income	4.9%	5.2%	5.5%	5.8%	6.1%	4.8%	7.1%
Capital w/o Capex	5.6%	5.6%	5.5%	5.4%	5.3%	5.7%	3.8%
Capital Expenses	-0.7%	-0.7%	-0.8%	-0.8%	-0.8%	-0.6%	-1.4%
Total	9.9%	9.9%	9.9%	9.9%	9.8%	10.1%	9.7%
St. Dev of Total Return	5.0%	5.1%	5.3%	5.5%	5.9%	5.0%	8.4%
CPI	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%
Real Return	7.7%	7.7%	7.6%	7.6%	7.6%	7.8%	7.4%
Distributable Income	4.2%	4.5%	4.7%	5.0%	5.3%	4.2%	5.7%

Source: UBS Farmland Investors LLC, NCREIF data 1991 to 2020

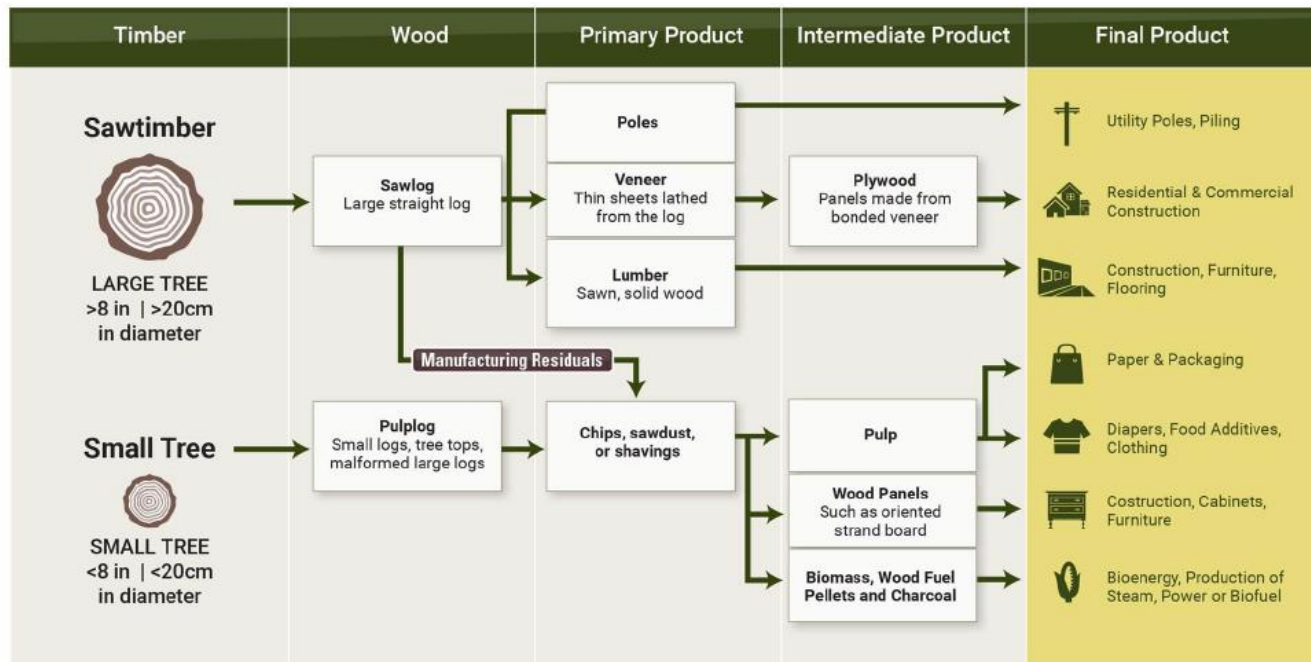
Alaska Retirement Management Board

Timberland – Current Portfolio

- Investments are made on a discretionary basis within the parameters defined by ARMB's guidelines and annual investment plan up to approved allocations.
- Portfolios are comprised of U.S. timberland. ARMB owns 100% of the assets.

Timberland Portfolio Profile June 30, 2020

- Total Net Asset Value: \$356.9 million
- Number of Properties: 17
- Total acres: 166,874
- Number of States where investments are located: 11

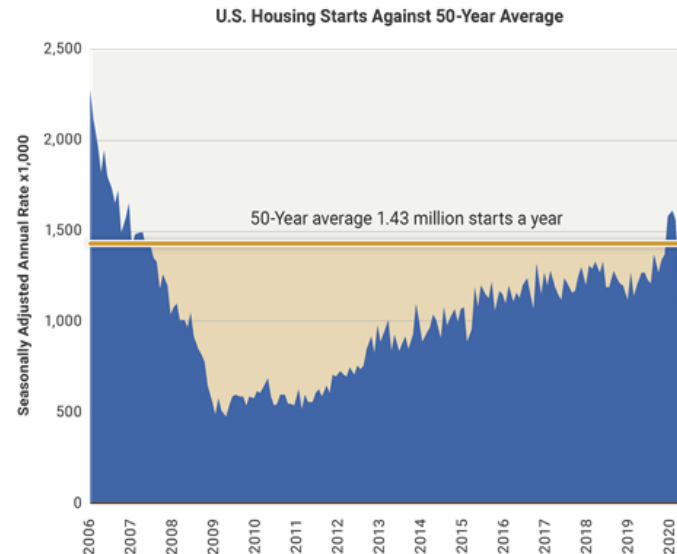
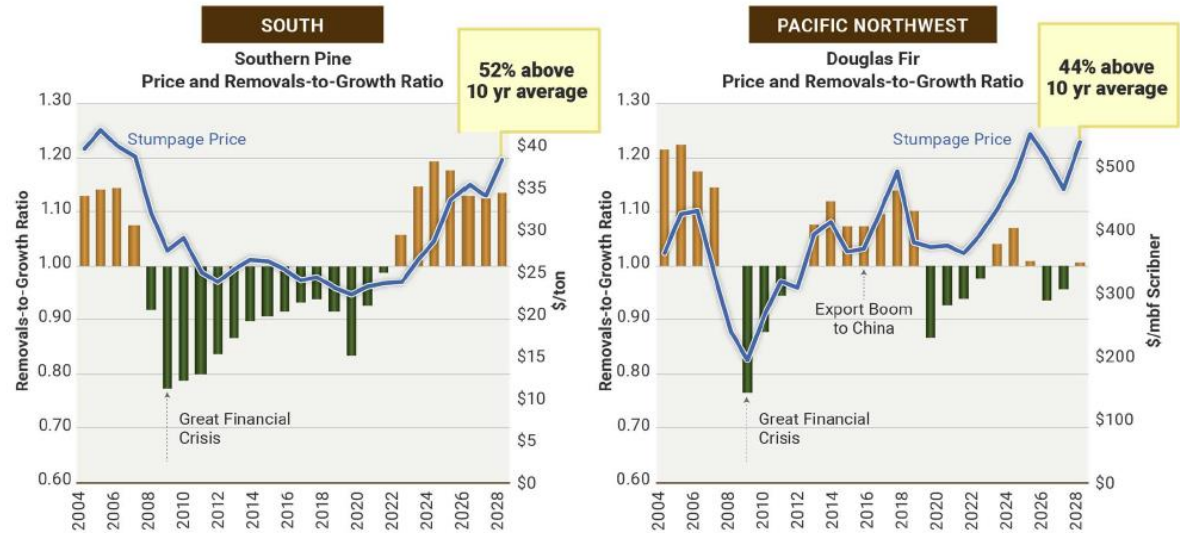


Source: Timberland Investment Resources, LLC

Alaska Retirement Management Board

Timberland Portfolio – Fiscal Year 2021 Plan

- Stay the course with current transition and with separate account strategy with TIR LLC.
- Sector has not kept up with multiple expansion in other sectors due to supply/demand imbalance. Those forces appear to be shifting with increasing demand for housing and reduced supply from Canadian sources.
- Housing starts have been on an improving trajectory and may be supported further from COVID related housing decisions.
- Expected 7-year IRR for the ARMB portfolio is 8.13%.



Alaska Retirement Management Board

Infrastructure Portfolio

- ARMB is invested in two open-end private investment funds, sponsored by J.P. Morgan and Industry Funds Management (IFM). These strategies pursue assets in mainly developed markets in businesses with primarily regulated and contracted cash flows.
- Investments are focused on essential core public infrastructure. Assets include regulated water, regulated electricity, airports, pipelines, toll roads and ports. Target return is 8 – 12% net with a high cash yield.
- COVID impact has had a significant negative impact on the operations of GDP sensitive assets such as airports and ports but the diversification of the portfolios appears to be resilient thus far.

Infrastructure Portfolio Profile June 30, 2020

- Total Net Asset Value: \$657.3 million
- Number of Company Investments in Funds: 35
- Total Combined Fund NAV (all investors): \$43.6 billion



Seaport held in IFM Fund



Koole Terminals held in JPM Fund

Alaska Retirement Management Board

Real Assets – Fiscal Year 2021 Recommendation Summary

Real Estate	<p>Allow prudent amounts of leverage in the core separate account portfolios.</p> <ul style="list-style-type: none">▪ Maximum 30% LTV at the portfolio level▪ Maximum 65% LTV at the property level▪ Non-recourse to ARMB <p>Increase UBS Realty allocation by \$20 million.</p>
Farmland	<p>Change row/permanent crop type target weights from 60%/40% to 80%/20%.</p>
Timberland	<p>No changes recommended.</p>
Infrastructure	<p>No changes recommended.</p>

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT: Fiscal Year 2021 Real Assets Annual
Investment Plan

ACTION: X

DATE: September 17-18, 2020

INFORMATION:

BACKGROUND

Staff prepares an Annual Real Assets Investment Plan to review performance, structure, objectives, and strategy of the portfolio. The plan establishes the Board-approved plan for the portfolio for the upcoming fiscal year.

STATUS

Staff, with the assistance of Callan, has developed the Real Assets Annual Investment Plan for Fiscal Year 2021. The Real Assets Annual Investment Plan includes a presentation of the Fiscal Year 2021 investment strategy.

For Fiscal Year 2021 the plan is to continue to implement portfolio consolidation initiatives that were approved by the Board in June 2020. Additionally, staff seeks approval to permit leverage in the real estate core separate accounts. This is expected to add incremental return and improve diversification of the portfolio. Finally, in the Farmland portfolio, staff recommends adjusting target crop weights to 80/20 from 60/40 to optimize the risk return structure of the portfolio. Recommendations for the Real Assets Fiscal Year 2021 Investment Plan are as follows:

Real Estate	Allow prudent amounts of leverage in the core separate account portfolios. <ul style="list-style-type: none">▪ Maximum 30% LTV at the portfolio level▪ Maximum 65% LTV at the property level▪ Non-recourse to ARMB Increase UBS Realty allocation by \$20 million.
Farmland	Change row/permanent crop type target weights from 60%/40% to 80%/20%.
Timberland	No changes recommended.
Infrastructure	No changes recommended.

RECOMMENDATION

The ARMB approve Resolution 2020-14 which adopts the Real Assets Annual Investment Plan for Fiscal Year 2021, approve Resolution 2020-15 which adopts the revised Real Estate Guidelines, and approve Resolution 2020-16 which adopts the revised Farmland Guidelines.

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
Relating to Real Assets Annual Investment Plan

Resolution 2020-14

WHEREAS, the Alaska Retirement Management Board (Board) was established by law to serve as trustee to the assets of the State's retirement systems; and

WHEREAS, under AS 37.10.210-220, the Board is to establish and determine the investment objectives and policy for each of the funds entrusted to it; and

WHEREAS, AS 37.10.071 and AS 37.10.210-220 require the Board to apply the prudent investor rule and exercise the fiduciary duty in the sole financial best interest of the funds entrusted to it and treat beneficiaries thereof with impartiality; and

WHEREAS, the Board contracts an independent consultant to provide experience and expertise in asset allocation and other investment matters to come before the Board; and

WHEREAS, the Board has established an asset allocation for the funds that considers earnings and liabilities on a current as well as a future basis; and

WHEREAS, the Board has authorized investments in Real Assets for the Public Employees' Retirement System, Teachers' Retirement System, and Judicial Retirement System, including investments for those systems in the State of Alaska Retirement and Benefits Plans Trust; and

WHEREAS, the Board will establish and on an annual basis review an investment plan for Real Assets asset class.

NOW THEREFORE BE IT RESOLVED THAT THE ALASKA RETIREMENT MANAGEMENT BOARD adopt the Real Assets Annual Investment Plan for Fiscal Year 2021, attached hereto and made a part hereof.

DATED at Juneau, Alaska this ____ day of September, 2020.

Chair

ATTEST:

Secretary

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
Relating to Real Estate Investment Guidelines

Resolution 2020-15

WHEREAS, the Alaska Retirement Management Board (Board) was established by law to serve as trustee to the assets of the State's retirement systems; and

WHEREAS, under AS 37.10.210-220, the Board is to establish and determine the investment objectives and policy for each of the funds entrusted to it; and

WHEREAS, AS 37.10.071 and AS 37.10.210-220 require the Board to apply the prudent investor rule and exercise the fiduciary duty in the sole financial best interest of the funds entrusted to it and treat beneficiaries thereof with impartiality; and

WHEREAS, the Board contracts an independent consultant to provide experience and expertise in asset allocation and other investment matters to come before the Board; and

WHEREAS, the Board has established an asset allocation for the funds that considers earnings and liabilities on a current as well as a future basis; and

WHEREAS, the Board has authorized investment in real estate assets for the Public Employees' Retirement System, Teachers' Retirement System, and Judicial Retirement System, including investments for those systems in the State of Alaska Retirement and Benefit Plans Trust; and

WHEREAS, the Board establishes and from time to time as necessary, modifies investment policies, procedures, and guidelines for real estate;

NOW THEREFORE, BE IT RESOLVED THAT THE ALASKA RETIREMENT MANAGEMENT BOARD adopts the revised Real Estate Investment Guidelines, attached hereto and made a part hereof. This resolution repeals and replaces Resolution 2018-15.

DATED at Juneau, Alaska this ____ day of September, 2020.

Chair

ATTEST:

Secretary

ALASKA RETIREMENT MANAGEMENT BOARD REAL ESTATE INVESTMENT POLICIES, PROCEDURES AND GUIDELINES

TABLE OF CONTENTS

	Page #
<u>I. INVESTMENT OBJECTIVES</u>	<u>1</u>
A. Investments in Real Estate and Other Real Estate Related Assets	1
B. Asset Allocation	1
C. Portfolio Return Objective	1
<u>II. PROGRAM RISK MANAGEMENT AND IMPLEMENTATION</u>	<u>2</u>
A. Institutional Quality	2
B. Diversification	2
C. Implementation Approach	6
D. Prudent Leverage	6
E. Lease Structure	7
F. Separate Account Investment Manager Business Plan; Annual Strategic/Tactical Plan; Disposition/Exit Strategy	7
G. Fee Structure	7
H. Single Asset Ownership Structure (Applies to Separate Accounts Only)	7
I. Reporting System	7
J. Distribution of Current Income	8
K. Lines of Responsibility	8
<u>III. CONFLICTS OF INTEREST</u>	<u>8</u>
A. Property Valuation	8
B. Property Management	9
<u>IV. INSURANCE COVERAGE</u>	<u>9</u>
<u>V. UNRELATED BUSINESS INCOME TAX</u>	<u>9</u>
<u>VI. ENVIRONMENTAL EVALUATIONS</u>	<u>9</u>
<u>VII. PROCEDURES FOR INVESTMENT</u>	<u>10</u>
A. Delegation of Responsibilities	10
B. Investment Procedure	11
<u>VIII. DELEGATION OF AUTHORITY</u>	<u>12</u>
<u>IX. CONFIDENTIALITY</u>	<u>12</u>
<u>X. REVISIONS</u>	<u>13</u>
<u>XI. REAL ESTATE SEPARATE ACCOUNT INVESTMENT MANAGERS</u>	<u>14</u>
<u>XII. REAL ESTATE COMMINGLED ACCOUNT INVESTMENT MANAGERS</u>	<u>14</u>

ATTACHMENTS

Attachment 1 – Delegation of Responsibilities

ALASKA RETIREMENT MANAGEMENT BOARD

REAL ESTATE INVESTMENT

POLICIES, PROCEDURES AND GUIDELINES

I. INVESTMENT OBJECTIVES

A. Investments in Real Estate and Other Real Estate Related Assets

The Alaska Retirement Management Board (ARMB) will invest in real estate with the goals of portfolio diversification and attaining the optimum return on the portfolio, consistent with the assumption of prudent risk and safety of principal. ARMB recognizes the need to use active investment management in order to obtain the highest attainable total investment return (measured as income plus appreciation) within ARMB's framework of prudence and managed risk.

ARMB will select Real Estate Investment Managers who have the discretion to invest in publicly traded equity, privately placed debt, and/or privately placed equity sectors, subject to ARMB's approval of an Annual Strategic/Tactical Plan and an Annual Investment Plan. In order for real estate investments to be considered, the Investment Manager must demonstrate that it is able to: add value through its real estate knowledge, experience and strategy; underwrite the risks of the investment which is contemplated; and at the time of investment, comply with the intent of the Real Estate Investment Policies, Procedures and Guidelines (**Guidelines**).

Single property and multi property strategies will be considered as well as "pooled/commingled" fund investment vehicles.

B. Asset Allocation

The ARMB allocation to real estate investments shall be determined by the Board of Trustees and reviewed annually. Allocated capital to Investment Managers will be defined as invested capital based on ARMB's cost.

C. Portfolio Return Objective

1. Total Return

Over rolling six- year periods, the ARMB real estate investment portfolio is expected to generate a net-of-fee total return between public equities and fixed-income.

2. Income Return

Income, which is defined as cash distributed to ARMB, is expected to produce 50-60% of the total return over rolling five-year periods.

3. Index

The overall portfolio is expected to exceed the target index. The target index is composed of 80% NFI-ODCE and 20% NAREIT Equity Index.

II. PROGRAM RISK MANAGEMENT AND IMPLEMENTATION

The selection and management of assets in the real estate portfolio of the ARMB will be guided by the principles of preserving investment capital, attaining the optimum return on the portfolio consistent with the assumption of prudent risk, generating current income, being sensitive to inflation, maintaining diversification of assets and diversification of management responsibility.

In real estate investment, there is an inherent risk that the actual income and return of capital will vary from the amounts expected. The ARMB will manage the investment risk associated with real estate in several ways:

A. Institutional Quality

All assets must be of institutional investment quality as evidenced by a precedent of institutional investment in similar properties; expert analysis which supports the economic viability of the market; high quality construction and design features; and a potential competitive position within the property's immediate market area.

B. Diversification

The real estate portfolio will be diversified as to style group, property type, industry sector, life cycle, economic driver, investment manager and geographical location. Diversification reduces the impact on the portfolio of any one investment or any single manager's investment style to the extent that an adversity affecting any one particular area will not impact a disproportionate share of the total portfolio. Portfolios for core investment managers and non-core or value added investment managers will carry the diversification characteristics set forth in the allocations and definitions set out below. Diversification compliance will be monitored on a quarterly basis for compliance with ARMB's Guidelines by staff and the real estate consultant.

For purposes of calculating diversification compliance, the overall real estate portfolio size will be considered the product of the greater of projected or target real estate allocation times the projected fiscal year-end overall plan assets as established in the Annual Investment Plan. The projected fiscal year-end overall plan assets will take into account the target allocations and projected returns of all asset classes in which plan assets are invested, and estimated net pay-outs to plan beneficiaries. Unless exceptional circumstances justify a deviation, the maximum percentage of the real estate portfolio investment for each of the identified categories is as follows:

Non-Controlled Investments:	
(ARMB cannot liquidate within 180 days)	50%
Non-Core Investments (See definition below):	50%
Single Manager Limit:	45 %
<i>(value of both Separate Account and Commingled Fund combined, if applicable)</i>	

Geographic:

ARMB will avoid over-concentration in areas of similar real estate performance. The consultant will monitor ARMB's concentrations in this area, considering indicators such as NCREIF sub-region, metropolitan areas and economic drivers. The consultant will report its conclusions regarding the acceptability of ARMB's concentration limits quarterly.

Outside United States:	20 %
Single Property Investment:	5 %
<i>(acquisition cost plus projected capital additions and improvements)</i>	
Single-Tenant (any one firm):	10 %
Property Type:	40 %

Manager Allocation – It is understood that Separate Account Investment Managers may exceed their Board-approved allocations by up to 5% for the purposes of capital improvements on existing assets and/or for the completion of an acquisition. A core Separate Account Investment Manager's portfolio may be invested up to 15% in core-plus style properties to assemble a core portfolio. A value-added Separate Account Investment Manager's portfolio shall include 70%-100% in value-added style properties, and may include up to 30% in opportunistic style properties.

Subject to CIO approval, upon the sale of a property held by a Separate Account Investment Manager in which the net sales proceeds are in excess of the property's cumulative basis, the advisor's allocation will increase in an amount equal to the lesser of the excess of the net sales proceeds over the property's cumulative basis or the aggregate

portfolio net asset value over the aggregate portfolio cumulative basis adjusted to reflect actual sale proceeds. The CIO will also consider whether an allocation increase should be adjusted for any past realized losses incurred by the Separate Account Investment Manager. The intent of this provision is to allow a Separate Account Investment Manager to reinvest realized gains but only to the extent gains are greater than losses which have been experienced in other property investments in the Separate Account Investment Manager's portfolio.

Exceptional circumstances justifying a deviation – When circumstances arise of a temporary nature, such as an unexpected re-valuation of assets, a transfer of assets among managers, or an event in which it would be in the fiduciary interest of the ARMB to do so, the limits set forth in paragraph II.B of ARMB Policies may be exceeded provided that ARMB concurs.

CIO Discretionary Investment Authority – The CIO shall have the following discretionary investment authority:

- a) To increase or decrease existing separate account allocations and investments in open-end funds;
- b) To commit to new investment funds up to \$100 million for each fund; and,
- c) To engage consultants and take other action as may be necessary to ensure sufficient due diligence is performed on all investments under consideration.

The CIO shall exercise this discretion within Board approved asset allocations, investment plans, and guidelines as they may apply.

The CIO will provide prior notification to the Chair of ARMB before committing to any investments under this authority. All discretionary CIO investment actions shall be reported to the Board.

Definitions

Core Investments

Primary
Characteristics:

- Fully or substantially leased (85% occupancy or greater)
- Inconsequential turnover near term
- Inconsequential physical issues or renovation required
- Credit tenants
- Primary markets
- Quality property
- Income produces 50% or more of expected return
- Typically longer term holds

- Properties in markets with stable or improving economic conditions

Core-plus Investments

Primary
Characteristics:

- Limited renovation, primarily deferred maintenance, limited physical issues or repositioning needed
- Modest near term lease roll over; modest vacant lease up
- Expected growth through increasing rents
- Poor prior management
- A- to B- quality
- Income produces 50% or more of expected return

Non-Core Investments

Value-Added Investments

Primary
Characteristics:

- Asset renovation – lobbies, corridors, deferred maintenance
- Intermediate term (6-9 months) physical issues
- Current vacancies or rent loss
- Near term roll over exposure
- Repositioning, re-tenanting
- Distressed prior management
- Purchase of adjacent land to develop
- Alternative, turnaround markets and property types
- Income produces 50% or less of total return

Opportunistic Investments – These investments involve significant redevelopment risk, high leasing risk, and high development risk.

Primary
Characteristics:

- Empty Buildings
- High near term turnover
- New development – spec or limited pre-leasing
- Significant rehabilitation and leasing, redevelopment into alternative uses
- Capital displacement in maligned markets: lack of investment capital due to level of risk

- Non-traditional asset type (mezzanine debt, land, etc.)
- Wide ranging investment structures
- Investing in non-performing notes
- Cross-border investing
- Holding periods typically 1 to 5 years
- Income produces less than 50% of total return

Note: *Properties within a multi-property investment will be categorized as either core or non-core.*

C. Implementation Approach

All allocation of funds to a manager (including additional investment with existing accounts) and investment strategy must be recommended to ARMB by Staff and the Real Estate Consultant and be accompanied by an investment report which, at a minimum, includes the following: market information; investment alternatives; fee structure and comparison to other alternatives; demonstration of compliance with Guidelines and the then current Annual Investment Plan; historical performance of Separate Account Investment Manager (cash-based internal rates of return and industry standard); projected returns (income and appreciation); and positive and negative attributes of the investment strategy.

On a selective basis, a member of ARMB may visit the site of a real estate investment for the purpose of rendering a report to ARMB supplementing reports provided by Staff, the Real Estate Consultant, or others.

D. Prudent Leverage

~~The total amount of leverage placed on the aggregate separate account assets will not exceed thirty five percent (35%) of the total market value of the real estate separate account portfolio. Directly owned properties will not be leveraged by the Separate Account Investment Manager. Separate account investment managers may place leverage on properties up to a maximum of 65% at the property level and 30% at the portfolio level, measured at the time the financing is established. All debt shall be non-recourse to ARMB. Property encumbered by debt at the time of purchase, if justified on a risk-return basis by the Separate Account Investment Manager, may be acquired subject to the aforementioned leverage constraints. Chief Investment Officer approval. With authorization by the ARMB, the Chief Investment Officer may place leverage on a pool of existing core real estate assets held in ARMB's separate account portfolio in a manner consistent with the ARMB's Guidelines.~~

The total amount of fund level leverage, at the time of investment, will not exceed 35% for core commingled funds investing in a core equity diversified asset strategy. The total amount of fund level leverage, at the time of investment, will not exceed 65% for non-core commingled funds investing in a value-add or opportunistic diversified asset strategy.

E. Lease Structure

Multi-tenant and single tenant properties will be considered. When acquiring single tenant properties, consideration will be given to avoid multiple single-tenant exposure to any firm if those single tenant properties constitute more than 10% of the portfolio. A staggered lease structure for commercial properties will be emphasized.

F. Separate Account Investment Manager Business Plan; Annual Strategic/Tactical Plan; Disposition/Exit Strategy

A Business Plan (including property operating budgets) will be completed by each Separate Account manager for each asset under its management. The Business Plan will identify the current and anticipated competitive position for each property in order to set tactical and strategic objectives and will prescribe in appropriate detail a disposition and exit strategy respecting the particular investments. Part of this process is to evaluate the potential timing of dispositions. A property is considered for sale when it is believed that the equity in the existing investment can achieve a higher return in another real estate investment of similar risk. The Annual Strategic/Tactical Plan will describe the expectation of the manager with respect to acquisitions and dispositions.

G. Fee Structure

Involvement in any venture will be done on a fee basis that is competitive. The preferred method of calculating manager fees will be based upon a formula, which considers both 1) the cost basis of assets under management and 2) investment performance. All fee structures will be approved by ARMB. For core managers, the return-based portion of a fee will emphasize actual cash available for distribution to ARMB.

H. Single Asset Ownership Structure (Applies to Separate Accounts Only)

Provided that the goals of these guidelines are followed, ARMB may invest in separate, specific real estate assets. However, such investments will be undertaken in a fashion structured to limit ARMB's liability to the amount of its investment.

I. Reporting System

Staff and the Real Estate Consultant will develop and implement a comprehensive and responsive reporting and monitoring system for the entire portfolio, individual investments and individual managers. The reporting and monitoring system will endeavor to identify under-performing investments, controlled portfolio diversification deficiencies and inherent conflicts of interest, thereby facilitating active portfolio management. A cash-based internal rate of return (IRR) will be used when evaluating the long-term performance of an investment. Time- weighted returns will be used to measure comparative performance.

J. Distribution of Current Income

All separate account income will be distributed immediately to ARMB or its designee and not automatically reinvested in the account.

K. Lines of Responsibility

Well defined lines of responsibility and accountability will be required of all participants in ARMB's real estate investment program. Participants are identified as:

ARMB – The fiduciaries appointed by the Governor to represent the beneficiaries' interest which shall retain final authority over all real estate investment decisions.

Staff – Investment professionals on the staff of the Department of Revenue and assigned ARMB responsibilities who will assist in the Real Estate equity investment program's design, policy implementation and administration.

Real Estate Consultant – Professionals retained to support Staff and ARMB through the provision of expert real estate strategic planning, implementation and performance monitoring support.

Separate Account Investment Managers – Qualified entities who provide institutional real estate investment management services and maintain a discretionary relationship with ARMB subject to Staff's approval of Annual Business Plans and Annual Strategic/Tactical plans, prepared by Separate Account Investment Managers, and ARMB's approval of the Annual Investment Plan.

Commingled Fund Managers – Qualified entities who provide institutional real estate investment management services through open-end and closed-end real estate pools and other pooled/commingled vehicles.

III. CONFLICTS OF INTEREST

In real estate investment, separate and distinct from other asset classes, the Manager of a Separate Account or Commingled Fund may have direct or significant control over the operations of the assets. This inherent or potential conflict of interest if openly described and regulated may contribute to the lower volatility associated with the asset class, but it also creates a need for a higher oversight standard by the plan sponsor. Staff and ARMB will maintain this oversight in at least the following ways:

A. Property Valuation

The Separate Account Investment Manager will provide ARMB with annual appraisal valuations for all properties for which it has asset management responsibility as of the quarter ending March 31. Unless otherwise directed by ARMB, the appraisal will be prepared by a qualified independent third party entity in accordance with industry standards. Staff may waive the appraisal requirement for recent acquisitions or pending dispositions following a recommendation by the Separate Account Investment Manager that such appraisal would not be a cost effective exercise. For development assets, appraisals are to be conducted in the manner described above after substantial completion payment by ARMB is made. In addition, the Separate Account Investment Manager will mark each asset to market each quarter based on asset conditions and leasing, operations and capital market conditions for comparable properties in that market.

B. Property Management

The selection of on-site property management will generally be left to the discretion of the Separate Account Investment Manager. It is expected that the Separate Account Investment Manager will retain the highest caliber, market rate property management service either through a third party fee manager or the Separate Account Investment Manager's affiliated property management division. This business relationship will be periodically reviewed by Staff, the Real Estate Consultant and ARMB.

IV. INSURANCE COVERAGE

The Separate Account Investment Manager will obtain insurance for the physical properties and assets under its control. The coverage will be in such amounts and against such risks as, in the Separate Account Investment Manager's professional judgment, shall be in accordance with sound institutional practices applicable to such properties or assets in the specific geographic area. It is expected that such insurance will include, but not be limited to, casualty loss, including where deemed appropriate by the Separate Account Investment Manager, earthquake, flood and any other disaster-type insurance coverage; comprehensive general liability; and title insurance. Separate Account Investment Managers will provide proof of insurance to Staff annually.

V. UNRELATED BUSINESS INCOME TAX

Prior to entering into any transaction, the Manager will assess whether income generated from the property under consideration could qualify as unrelated business taxable income. If this risk exists, the Manager will provide ARMB with an opinion of counsel satisfactory to ARMB that the transaction will not generate unrelated business taxable income under the federal income tax law or any other tax provisions that could affect ARMB's tax-exempt status existing at the time. The Manager shall investigate as to whether ARMB shall be entitled to any property tax exemptions. Managers will provide letters of opinion on UBIT and property tax exemptions to Staff.

VI. ENVIRONMENTAL EVALUATIONS

As a standard procedure during the pre-acquisition analysis, the Separate Account Investment Manager will initiate a formal evaluation for each property through the selection of an environmental consultant. In carrying out the review, appropriate procedures based on standards of the locale and conditions known to exist in the locale shall be undertaken and such procedures should at a minimum include:

- Appointment of an environmental consultant with specific experience in testing and removal of asbestos and other environmental hazards.
- A site survey will be conducted to determine from the available evidence whether hazardous chemicals or environmentally dangerous materials exist or have existed on the subject property, including, at a minimum, a Phase I report.

ARMB may invest in properties, which contain asbestos and other toxic substances, only if the following conditions are met:

- The substance and potential risks are thoroughly disclosed.

- The property is not in violation of any federal, state or local law, ordinance, or regulation relating to the property's environmental condition.
- The estimated cost of the removal or containment programs will be reflected in the purchase assumptions.
- The substance can be properly contained or removed in accordance with the then current Environmental Protection Agency Standards.
- The leasing rollover pattern in the property will accommodate a removal program in the future.

Separate Account Investment Managers will provide the environmental evaluation reports to staff

VII. PROCEDURES FOR INVESTMENT

A. Delegation of Responsibilities

The real estate investment program will be implemented and monitored through the coordinated efforts of the ARMB, Staff, the Real Estate Consultant, and the qualified Manager(s). Delegation of responsibilities for each participant is described in the following sections: A summary of the delegation is attached:

1. ARMB

ARMB will retain final authority over all real estate investment strategy decisions except for Business Plan variances as set forth in the Guidelines Section VIII; approve the Guidelines, the Annual Investment Plan and any periodic revisions to these documents which ARMB deems to be appropriate and prudent for the investment of ARMB assets; retain qualified investment managers and real estate consultants; and set investment limits.

2. Staff

Staff will coordinate program compliance among all participants and communicate the investment policies, objectives and performance criteria to the Separate Account Investment Managers and monitor diversification compliance on a quarterly basis. Staff will also coordinate the receipt and distribution of capital. Staff, in cooperation with the Real Estate Consultant, will periodically review the Separate Account Investment Managers' and portfolio's performance in relation to target returns; review and approve the Separate Account Investment Manager's Annual Business Plan and Annual Strategic/Tactical Plan; review and recommend investments in commingled vehicles; prepare and recommend an Annual Investment Plan; and recommend revisions to the Real Estate Investment Policy Procedures and Guidelines. Staff will also review and approve the detailed property operating budgets prior to the start of each fiscal year and revisions to the property operating budgets in accordance with Section VIII of these Guidelines.

3. Real Estate Consultant

In cooperation with Staff and as deemed appropriate by ARMB, the Real Estate Consultant will ensure program compliance; assist in the implementation of a multiple manager program; review all program documentation and management

relationships; conduct manager searches when requested; provide performance measurement analysis of the portfolio; review the Annual Investment Plan as set forth in the Investment Procedures outlined below; and provide special project research pertaining to technical real estate issues.

The Real Estate Consultant will, as requested by ARMB, provide periodic reports for the real estate program including a performance evaluation of the total portfolio to include both ARMB's commingled fund investments and ARMB's separate account investments. The analysis will include both income and capital accounting; comparison to industry performance benchmarks (such as NCREIF); Manager reviews, and effects of "Pooled Leverage" on the real estate portfolio. The Real Estate Consultant will prepare a quarterly performance analysis report which will provide after-fee realized and unrealized gains/losses; monitor and report quarterly diversification compliance and the geographic concentration limits; time weighted returns including both current quarter returns and annualized returns since portfolio inception; and internal rates of return since inception based on actual cash flow from and to ARMB.

Additional responsibilities may include developing selection criteria in manager search efforts, coordinating/conducting manager searches, conducting manager reviews, and other special projects.

4. Managers

Separate Account Investment Managers will acquire and manage real estate investments on behalf of ARMB and in accordance with the then current and approved Annual Business, Annual Strategic/Tactical Plans, and the objectives set forth in the Annual Investment Plan and the Guidelines. Managers will prepare Annual Business (including property operating budgets) and Annual Strategic/Tactical Plans for Staff review and approval.

Commingled fund investment managers will acquire and manage real estate investments on behalf of ARMB and in accordance with the terms of any and all agreements between each respective Manager and ARMB.

B. Investment Procedure

Real estate investments, in compliance with ARMB's Policies, shall be acquired through the following process:

1. Separate Accounts:

Annually, Staff will prepare an Investment Plan after reviewing the Annual Business and Strategic/Tactical Plans of the Separate Account Investment Managers. This document will recommend, as appropriate, revisions to the ARMB Guidelines, additional allocations to existing managers, and revisions to the Annual Business and Strategic/Tactical Plans of each respective Separate Account Investment Manager. Any searches that may be recommended will be outlined. The Investment Plan will then be reviewed by the consultant and submitted to ARMB for final approval. Staff and the Real Estate Consultant shall review the Separate Account Investment Manager's Annual Business Plans and Annual Strategic/Tactical Plans for consistency with the Annual Investment Plan. Staff will approve all Plans prepared by Separate Account Investment Managers.

Investments will be made on a discretionary basis by Separate Account Investment Managers in accordance with their approved Annual Business and Strategic/Tactical Plans. Separate Account Investment Managers must provide staff with copies of their internal “Investment Committee” reports for each asset purchased on ARMB’s behalf.

2. Commingled Funds:

Investments in commingled funds will be recommended by Staff and the Real Estate Consultant on an individual fund basis in accordance with the Annual Investment Plan and the ARMB Guidelines.

VIII. DELEGATION OF AUTHORITY

ARMB shall delegate authority to Staff to approve the following:

- Each Separate Account Investment Manager’s detailed property operating budgets for each fiscal year;
- Annual Business Plans and Annual Tactical/Strategic Plans prepared by ARMB’s Separate Account Investment Managers;
- Revised property operating budgets and variances in approved Annual Business Plans for unanticipated, significant leasing activity; and
- Line item variances in approved capital expenditure budgets in amounts up to \$300,000 with a cumulative fiscal year maximum of \$3,000,000 per Separate Account Investment Manager for other capital expenditures not related to leasing activity (such as repairs for building damage or defects).

IX. CONFIDENTIALITY

Pursuant to 15 AAC 112.770, ARMB shall withhold from other persons all information furnished to it by Manager(s) or Consultant(s) which is reasonably designated by Manager(s) or Consultant(s) as being confidential or proprietary, within the meaning of Alaska Statutes regarding rights to public information, except to the extent that the information is needed by ARMB in order to adequately report on the status and performance of the portfolio, or to comply with a court subpoena or with an official criminal investigation.

Those portions of reports provided pursuant to Part II section I (Reporting System) of these Guidelines shall be considered confidential pursuant to 15 AAC 112.770 to the extent that information is reasonably designated by Manager(s) as being confidential or proprietary, or to the extent the disclosure of which would unfairly prejudice the ability of Manager(s) or ARMB to manage, lease, market or sell such property or Assets.

X. REVISIONS

This document replaces and consolidates the policies, procedures, and guidelines as of ~~September 18~~^{October 5}, 2018⁸⁷. This document is to be reviewed no less than annually and revised as appropriate.

XI. REAL ESTATE SEPARATE ACCOUNT INVESTMENT MANAGERS

The following investment managers acquire institutional-grade properties on a discretionary basis for the Alaska Retirement Management Board:

UBS Realty Investors LLC

Property type – Core/apartments, industrial, retail and office

Contact - Jeffrey G. Maguire

Managing Director

10 State House Square

Hartford, CT 06103-3604

Telephone: 860-616-9086

Fax: 860-616-9104

E-mail: jeffrey.maguire@ubs.com

Web site: www.ubs.com

Sentinel Realty Advisors Corp.

Property type – Core/apartments only

Contact – George Tietjen

Managing Director

1251 Avenue of the Americas

New York, NY 10020

Telephone: 212-408-2929

Fax: 212-603-5961

E-mail: tietjen@sentinelcorp.com

Web site: www.sentinelcorp.com

LaSalle Investment Management

Property type—Core/apartments, industrial, retail and office (includes Takeover Assets)

Attn: Julie Manning

Managing Director

333 West Wacker Drive, Suite 2300

Chicago, IL 60606

Telephone: (312) 897-4052

E-mail: julie.manning@lasalle.com

Web site: www.lasalle.com

XII. REAL ESTATE COMMINGLED ACCOUNT INVESTMENT MANAGERS

UBS Realty Investors LLC

Contact: Thomas J. ~~O'Shea~~Anathan,

Managing Director

10 State House Square

Hartford, CT 06103-3604

Telephone: 860-616-9128;

Facsimile: 860-616-9104

E-mail: thomas.osheaanathan@ubs.com

J.P. Morgan Asset Management

Contact: Ann Cole, Managing Director Portfolio

Manager; Kimberly Adams, Managing Director

Portfolio Manager, Strategic Property Fund

270 Park Avenue, 7th Floor

New York, NY 10017

Telephone: (AC) 212-648-2152

Telephone: (KA) 312-732-6366

Facsimile: 917-464-7449

ann.e.cole@jpmorgan.com

kimberly.a.adams@jpmorgan.com

Clarion Partners

Contact: Richard Schaupp
Director
230 Park Avenue
New York, NY 10169
Telephone: 212-883-2716
Facsimile: 212-883-2806
E-mail: richard.schaupp@clarionpartners.com

Silverpeak Legacy Partners

Contact: Colleen Fennerty
Managing Director
40 West 57th Street, 29th Floor
New York, NY 10019
Telephone: 212-716-2064
Facsimile: (646) 285-9271
E-mail: investorrelations@silverpeakre.com

Tishman Speyer Properties

Contact: Julie Lurie
45 Rockefeller Plaza, 7th Floor
New York, NY 10020
Telephone: 212-715-0329
Facsimile: 212-895-0129
E-mail: JRLurie@tishmanspeyer.com

~~Barings Real Estate Advisers LLC~~

~~Contact: Patrick T. Kendall, Vice President~~
~~One Financial Plaza, Suite 1700~~
~~Hartford, CT 06103~~
~~Telephone: 310-234-2525~~
~~Facsimile: 949-852-9804~~
~~E-mail: pkendall@barings.com~~

Almanac Realty Investors, LLC

Contact: Matt Kaplan, Managing Partner
1140 Avenue of the Americas, 17th Floor New
York, NY 10036
Telephone: 212-403-3522
Facsimile: 212-403-3520
E-mail: matthew.kaplan@almanacrealty.com

Coventry Real Estate Fund II, LLC

Contact: Peter Henkel
1 East 52nd Street, 4th Floor
New York, NY 10022
Telephone: 212-699-4109
Facsimile: 212-699-4124
E-mail: phenkel@coventryadvisors.com

ColonyCapital, LLC

Contact: Andrea Nicholas
515 S. Flower Street, 44th Floor
Los Angeles, CA 90071
Telephone: 310-552-7191
Facsimile: 310-407-7391
E-mail: ANicholas@colonyinc.com

BlackRock, Inc.

Contact: Ted Koros, Managing Director
50 California Street, Suite 300
San Francisco, CA 94111
Telephone: 415-670-6210
Facsimile: 646-521-4982
E-mail: theodore.koros@blackrock.com

~~LaSalle Investment Management~~ Contact:

~~Steve Bolen, President~~
~~100 East Pratt Street, 20th Floor~~
~~Baltimore, MD 21202~~
~~Telephone: 410-347-0660~~
~~Facsimile: 410-347-0612 fax~~
~~E-mail: steve.bolen@lasalle.com~~

KKR & Co. L.P.

Contact: Dan McLaughlin, Director
555 California Street
San Francisco, CA 94101
Telephone: 415-315-6573
E-mail: dan.mclaughlin@kk.com

Attachment 1

REAL ESTATE INVESTMENT POLICY and PROCEDURES - Delegation of Responsibilities Attachment					
	Frequency	Separate Account Investment Managers	Consultant	Staff	Board
Real Estate Investment Policy, Procedures, and Guidelines			R	P&R	A
Review and Revise	Annually		R	R	A
Separate Account Investment Manager Selection	Periodically		G&R	G&R	A
Request For Proposal (RFP)			P&R	P&R	A
Real Estate Consultant Selection	Tri-Annually			G&R	A
Request For Proposal (RFP)				P&R	A
Commingled Fund Selection**	Periodically		R	R	A
Real Estate Investment Plan**	Annually		R	P&R	A
Separate Account Business Plan**	Annually	P	R	R&A	
Detailed Property Operating Budget	Annually	P	R	R&A	
Separate Account Strategic/Tactical Plan**	Annually	P	R	R&A	RT
Quarterly Performance	Quarterly		P	RT	RT
Portfolio/Property Diversification Compliance	Quarterly		M	M	
Geographic Concentration Limit	Quarterly		M	RT	
A = Approves RT = Reported To G = Grade M = Monitor P = Prepares R = Recommends					
* Grade Semi-finalists only ** Investment Decision (Shaded)					

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
Relating to Farmland Investment Guidelines

Resolution 2020-16

WHEREAS, the Alaska Retirement Management Board (Board) was established by law to serve as trustee to the assets of the State's retirement systems; and

WHEREAS, under AS 37.10.210-220, the Board is to establish and determine the investment objectives and policy for each of the funds entrusted to it; and

WHEREAS, AS 37.10.071 and AS 37.10.210-220 require the Board to apply the prudent investor rule and exercise the fiduciary duty in the sole financial best interest of the funds entrusted to it and treat beneficiaries thereof with impartiality; and

WHEREAS, the Board contracts an independent consultant to provide experience and expertise in asset allocation and other investment matters to come before the Board; and

WHEREAS, the Board has established an asset allocation for the funds that considers earnings and liabilities on a current as well as a future basis; and

WHEREAS, the Board has authorized investment in real estate assets for the Public Employees' Retirement System, Teachers' Retirement System, and Judicial Retirement System, including investments for those systems in the State of Alaska Retirement and Benefit Plans Trust; and

WHEREAS, the Board establishes and from time to time as necessary, modifies investment policies, procedures, and guidelines for real estate;

NOW THEREFORE, BE IT RESOLVED THAT THE ALASKA RETIREMENT MANAGEMENT BOARD adopts the revised Farmland Investment Guidelines, attached hereto and made a part hereof. This resolution repeals and replaces Resolution 2020-02.

DATED at Juneau, Alaska this _____ day of September, 2020.

Chair

ATTEST:

Secretary

APPENDIX E

ALASKA RETIREMENT MANAGEMENT BOARD FARMLAND INVESTMENT POLICIES, PROCEDURES AND GUIDELINES

TABLE OF CONTENTS

	Page #
<i>I. INVESTMENT OBJECTIVES</i>	<i>1</i>
A. Investments in Farmland and Other Farmland Related Assets	1
B. Asset Allocation	1
C. Portfolio Return Objective	1
<i>II. PROGRAM RISK MANAGEMENT AND IMPLEMENTATION</i>	<i>2</i>
A. Institutional Quality	2
B. Diversification	2
C. Implementation Approach	4
D. Prudent Leverage	4
E. Directly Operated Properties	5
F. Lease Structure	5
G. Manager Business Plan; Annual Strategic/Tactical Plan; Disposition/Exit Strategy	5
H. Fee Structure	5
I. Single Asset Ownership Structure (Applies to Separate Accounts Only)	5
J. Reporting System	56
K. Distribution of Current Income	6
L. Lines of Responsibility	6
<i>III. CONFLICTS OF INTEREST</i>	<i>6</i>
A. Property Valuation	67
B. Property Management	7
<i>IV. INSURANCE COVERAGE</i>	<i>7</i>
<i>V. UNRELATED BUSINESS INCOME TAX</i>	<i>7</i>
<i>VI. ENVIRONMENTAL EVALUATIONS</i>	<i>8</i>
<i>VII. PROCEDURES FOR INVESTMENT</i>	<i>8</i>
A. Delegation of Responsibilities	8
B. Investment Procedure	9
<i>VIII. DELEGATION OF AUTHORITY</i>	<i>10</i>
<i>IX. CONFIDENTIALITY</i>	<i>10</i>
<i>X. REVISIONS</i>	<i>10</i>
<i>XI. FARMLAND SEPARATE ACCOUNT INVESTMENT MANAGERS</i>	<i>10</i>

ALASKA RETIREMENT MANAGEMENT BOARD FARMLAND INVESTMENT POLICIES, PROCEDURES AND GUIDELINES

I. INVESTMENT OBJECTIVES

A. *Investments in Farmland and Other Farmland Related Assets*

The Alaska Retirement Management Board (ARMB) will invest in Farmland with the goals of portfolio diversification and attaining the optimum return on the portfolio, consistent with the assumption of prudent risk and safety of principal. ARMB recognizes the need to use active investment management in order to obtain the highest attainable total investment return (measured as income plus appreciation) within ARMB's framework of prudence and managed risk.

ARMB will select Separate Account Investment Managers (**Managers**) who have the discretion to invest in Farmland, subject to ARMB's approval of an Annual Strategic/Tactical Plan and an Annual Investment Plan. In order for Farmland investments to be considered, the Manager must demonstrate that it is able to: add value through its Farmland knowledge, experience and strategy; underwrite the risks of the investment which is contemplated; and comply with the intent of the Farmland Investment Policies, Procedures and Guidelines (**Guidelines**).

Single property and multi property strategies will be considered.

B. *Asset Allocation*

The ARMB allocation to Farmland investments shall be determined by the Board of Trustees and reviewed annually.

Farmland Investments will be allocated ~~-86~~60% to row crops and ~~2~~40% to permanent crops, +/- ten (10%) percent

Allocated capital to Managers will be defined as invested capital based on ARMB's cost.

C. *Portfolio Return Objective*

1. **Total Return**

Over rolling ~~-6~~ 6 year periods, the equity Farmland investment portfolio is expected to generate a net-of-fee total return between public equities and fixed income using a time-weighted rate of return calculation. ~~The inflation index used to calculate the actual real rate of return is the CPI All Urban.~~

2. Income Return

Income, which is defined as cash distributed to ARMB, is expected to produce 4.0% returns over rolling five-year periods with a minimum of 3.0% distributed income after fees and projected capital expenditures.

II. PROGRAM RISK MANAGEMENT AND IMPLEMENTATION

The selection and management of assets in the Farmland portfolio of the ARMB will be guided by the principles of preserving investment capital, attaining the optimum return on the portfolio consistent with the assumption of prudent risk, generating current income, being sensitive to inflation, maintaining diversification of assets and diversification of management responsibility.

In Farmland investment, there is an inherent risk that the actual income and return of capital will vary from the amounts expected. The ARMB will manage the investment risk associated with Farmland in several ways:

A. Institutional Quality

All assets must be of institutional investment quality as evidenced by a precedent of institutional investment in similar properties; i.e., properties that have high percentage of Class I & II soils or other soil types appropriate for the production of the targeted commodity, adequate sources of water for irrigation (if applicable) at reasonable costs, located in well established agricultural regions.

“Eligible Properties” mean real property in which ownership in fee vests in ARMB or an ARMB Title Holding Entity. Subsurface, water or other property rights will be acquired and/or retained consistent with use of the property for Farmland, and the terms of acquisition shall include the most favorable rights and terms accorded to any other participant in any controlling or overriding master lease or utilization type agreement which might be applicable to the use of the property (for example, if the ARMB property is a portion of a larger agricultural unit). For purposes of this definition, real property includes any property treated as real property either by local law or state law or for federal income tax purposes.

Investments will be located in the United States of America. International investments are not permitted.

B. Diversification

The Farmland portfolio will be diversified as to crop type, property type and geographical location. Diversification reduces the impact on the portfolio of any one investment. Diversification compliance will be monitored on a quarterly basis for compliance with ARMB’s Guidelines by staff.

For purposes of calculating diversification compliance, the overall Farmland portfolio size will be considered the allocation to Farmland. Unless exceptional circumstances justify a deviation, the maximum percentage of the Farmland portfolio investment for each of the identified categories is as follows:

Controlled Investments:	100 %
<i>(ARMB can liquidate within 180 days –targeted, not guaranteed))</i>	
Non-Controlled Investments:	50%
<i>(ARMB cannot liquidate within 180 days)</i>	
Public Equity:	0 %
Public Debt:	0 %
Private Equity:	100 %
Private Debt:	0 %

Geographic:

ARMB will avoid over-concentration in areas of similar Farmland performance. The consultant will monitor ARMB's concentrations in this area. The consultant will report its conclusions regarding the acceptability of ARMB's concentration limits quarterly.

Properties Within the Same NCREIF Farmland Region	40%
Single Property Investment:*	15%
<i>(acquisition cost plus projected capital additions and improvements)</i>	
Single-Tenant/Sub-Tenant (any one firm):	15%
Crop Type (with a band of +/- 10%)	
Row Crop	60%
Permanent Crop	40%
Properties Producing the Same Commodity	30%

Exceptional circumstances justifying a deviation – When circumstances arise of a temporary nature, such as an unexpected re-valuation of assets, a transfer of assets among managers, or an event in which it would be in the fiduciary interest of the ARMB to do so, the limits set forth in paragraph II.B of ARMB Policies may be exceeded provided that ARMB concurs.

* Exception for high cost markets shall be approved annually by the ARMB through its Annual Investment Plan.

Reinvestment of allocation by the investment manager shall require approval by the Chief Investment Officer (CIO). The CIO has discretion in determining the reinvestment amount to authorize. Amounts may reflect the original allocation or may recognize some portion of any realized gains or losses.

CIO Discretionary Investment Authority – The CIO shall have the following discretionary investment authority:

- a) To increase or decrease existing separate account allocations and investments in open-end funds;
- b) To commit to new investment funds up to \$100 million for each fund; and,
- c) To engage consultants and take other action as may be necessary to ensure sufficient due diligence is performed on all investments under consideration.

The CIO shall exercise this discretion within Board approved asset allocations, investment plans, and guidelines as they may apply.

The CIO will provide prior notification to the Chair of ARMB before committing to any investments under this authority. All discretionary CIO investment actions shall be reported to the Board.

C. Implementation Approach

The ARMB will endeavor to allocate specific funds to qualified managers on a separate account basis. Selected managers will seek Farmland investment opportunities in privately-placed equity sectors. Investments will be made on a discretionary basis subject to ARMB Staff approval of the Annual Strategic/Tactical Plans prepared by Managers and Staff's approval of the Annual Investment Plan.

All allocation of funds to a manager (including additional investment with existing accounts) and investment strategy must be recommended to Staff and be accompanied by an investment report which, at a minimum, includes the following: market information; investment alternatives; fee structure and comparison to other alternatives; demonstration of compliance with the Guidelines and the then current Annual Investment Plan; historical performance of Manager (cash-based internal rates of return and industry standard); projected returns (income and appreciation); and positive and negative attributes of the investment strategy.

On a selective basis, a member of ARMB may visit the site of a Farmland investment for the purpose of rendering a report to ARMB supplementing reports provided by Staff or others.

D. Prudent Leverage

The total amount of leverage placed on the aggregate Separate Account assets will not exceed ten percent (10%) of the total market value of the Farmland separate account portfolio. Directly-owned properties will not be leveraged by the separate account investment manager unless, with approval from the Chief Investment Officer, the property was encumbered by debt at the time of purchase and leaving the debt in place can be justified on a risk-return basis. With authorization by the ARMB, the Chief Investment

Officer may place leverage on a pool of existing core Farmland assets held in ARMB's separate account portfolio in a manner consistent with the ARMB's Guidelines.

E. Directly Operated Agriculture Properties

Directly operated agriculture properties are permitted. Managers will select operators for agricultural properties who have relevant experience and who have demonstrated expertise in operating that property's crop type.

F. Lease Structure

All leases must be of institutional investment quality with a precedent of institutional investment in similar properties; Leases will be structured with fixed cash rents, or participating rents calculated as a percentage of gross income. A lease structure incorporating both fixed cash rent and participating rent is also acceptable.

G. Manager Business Plan; Annual Strategic/Tactical Plan; Disposition/Exit Strategy

A Business Plan (including property operating budgets) will be completed by each manager for each asset under its management. The Business Plan will identify the current and anticipated competitive position for each property in order to set tactical and strategic objectives and will prescribe in appropriate detail a disposition and exit strategy respecting the particular investments. Part of this process is to evaluate the potential timing of dispositions. The Annual Strategic/Tactical Plan will describe the expectation of the manager with respect to acquisitions and dispositions.

H. Fee Structure

Involvement in any venture will be done on a fee basis that is competitive. The preferred method of calculating manager fees will be based upon a formula, which considers 1) the cost basis of assets under management and 2) market value of the assets under management. All fee structures will be approved by ARMB.

I. Single Asset Ownership Structure (Applies to Separate Accounts Only)

Provided that the goals of these guidelines are followed, ARMB may invest in separate, specific Farmland assets. However, such investments will be undertaken in a fashion structured to limit ARMB's liability to the amount of its investment.

J. Reporting System

Staff will develop and implement a comprehensive and responsive reporting and monitoring system for the entire portfolio, individual investments and individual managers. The reporting and monitoring system will endeavor to identify under-performing

investments, control portfolio diversification deficiencies and inherent conflicts of interest, thereby facilitating active portfolio management. A cash-based internal rate of return (IRR) will be used when evaluating the long-term performance of an investment. Time-weighted returns will be used to measure comparative performance.

K. Distribution of Current Income

All separate account income less expenses and prudent operating reserves will be distributed to ARMB or its designee on a quarterly basis and not automatically reinvested in the Account.

L. Lines of Responsibility

Well defined lines of responsibility and accountability will be required of all participants in ARMB's Farmland investment program. Participants are identified as:

ARMB – The fiduciaries appointed by the Governor to represent the beneficiaries' interest which shall retain final authority over all Farmland investment decisions.

Staff – Investment professionals on the staff of the Department of Revenue and assigned ARMB responsibilities who will assist in the Farmland equity investment program's design, policy implementation and administration.

Separate Account Managers – Qualified entities that provide institutional Farmland investment management services and maintain a discretionary relationship with ARMB subject to Staff's approval of Annual Business Plans and Annual Strategic/Tactical plans, prepared by Managers.

III. CONFLICTS OF INTEREST

In Farmland investment, separate and distinct from other asset classes, the Manager of a Separate Account or Commingled Fund may have direct or significant control over the operations of the assets. Additionally, Managers may now or in the future maintain or manage properties and provide discretionary or non-discretionary advisory services for a number of other accounts and clients, including accounts affiliated with the Manager. These inherent or potential conflicts of interest if openly described and regulated may contribute to the lower volatility associated with the asset class, but it also creates a need for a higher oversight standard by the plan sponsor. Staff and ARMB will maintain this oversight in at least the following ways:

A. Property Valuation

The following valuation procedures shall be applied to all farmland assets managed in separate accounts for the Alaska Retirement Management Board:

- 1) All assets shall be appraised at the time of acquisition.

- 2) All assets shall be appraised annually during the quarter ending March 31 unless the property was acquired during the preceding twelve months in which case, based on a recommendation from the advisor, staff may allow an appraisal update or waive the appraisal requirement if such appraisal would not be a cost effective exercise.
- 3) All property valuations shall be reviewed internally by advisors for the quarters ending in June, September, and December. If changes in market conditions, expected cash flows, or other factors suggest a property valuation has likely changed by more than 3% to 5% the advisor shall prepare a documented internal valuation and record the resulting value in the financial statements.
- 4) Appraisals will be prepared by a qualified independent third party entity in accordance with industry standards. Appraisers shall be selected by the advisor in a manner that achieves a high quality appraisal at a reasonable cost.
- 5) Advisor shall attempt to rotate appraisers on each property every three years.

B. Property Management

The selection of on-site property management will generally be left to the discretion of the Manager. It is expected that the Manager will retain the highest caliber, market rate property management service either through a third party fee manager or the Manager's affiliated property management division. This business relationship will be periodically reviewed by Staff and ARMB.

IV. INSURANCE COVERAGE

The Manager will obtain insurance for the physical properties and assets under its control. The coverage will be in such amounts and against such risks as, in the Manager's professional judgment, shall be in accordance with sound institutional practices applicable to such properties or assets in the specific geographic area. It is expected that such insurance will include, but not be limited to, casualty loss, including where deemed appropriate by the Manager, disaster-type insurance coverage; comprehensive general liability; and title insurance.

V. UNRELATED BUSINESS INCOME TAX

The Manager will provide ARMB with an opinion of counsel satisfactory to ARMB that the standard lease or subsequent revisions to the standard lease used to lease Account Property will not generate unrelated business taxable income under the federal income tax law or any other tax provisions that could affect ARMB's tax-exempt status existing at the time. The Manager shall investigate as to whether ARMB shall be entitled to any property tax exemptions.

VI. ENVIRONMENTAL EVALUATIONS

As a standard procedure during the pre-acquisition analysis, the Manager will initiate a formal evaluation for each property through the selection of an environmental consultant. In carrying out the review, appropriate procedures based on standards of the locale and conditions known to exist in the locale shall be undertaken and such procedures should at a minimum include:

- Appointment of an environmental consultant with specific experience in testing and removal of asbestos and other environmental hazards.
- A site survey will be conducted to determine from the available evidence whether hazardous chemicals or environmentally dangerous materials exist or have existed on the subject property, including, at a minimum, a Phase I report.

ARMB may invest in properties, which contain asbestos and other toxic substances, only if the following conditions are met:

- The substance and potential risks are thoroughly disclosed.
- The property is not in violation of any federal, state or local law, ordinance, or regulation relating to the property's environmental condition.
- The estimated cost of the removal or containment programs will be reflected in the purchase assumptions.
- The substance can be properly contained or removed in accordance with the then current Environmental Protection Agency Standards.
- The leasing rollover pattern in the property will accommodate a removal program in the future.

VII. PROCEDURES FOR INVESTMENT

A. Delegation of Responsibilities

The Farmland investment program will be implemented and monitored through the coordinated efforts of the ARMB; Staff and; the qualified Manager(s). Delegation of responsibilities for each participant is described in the following sections: A summary of the delegation is attached:

1. ARMB

ARMB will retain final authority over all Farmland investment strategy decisions except for Business Plan variances as set forth in the Guidelines Section VIII; approve the Guidelines, the Annual Investment Plan and any periodic revisions to these documents which ARMB deems to be appropriate and prudent for the investment of ARMB assets; retain qualified investment managers and Farmland consultants; and set investment limits.

2. Staff

Staff will coordinate program compliance among all participants and communicate the investment policies, objectives and performance criteria to the Managers and monitor diversification compliance on a quarterly basis. Staff will also coordinate the receipt and distribution of capital. Staff will periodically review the Managers' and portfolio's performance in relation to target returns; review and approve the Manager's Annual Business Plan and Annual Strategic/Tactical Plan; review and recommend an Annual Investment Plan; and recommend revisions to the Farmland Investment Policy Procedures and Guidelines. Staff will also review and approve the detailed property operating budgets prior to the start of each fiscal year and revisions to the property operating budgets in accordance with Section VIII of these Guidelines.

3. Managers

Separate account investment managers will acquire and manage Farmland investments on behalf of ARMB and in accordance with the then current and approved Annual Business, Annual Strategic/Tactical Plans, and the objectives set forth in the Annual Investment Plan and the Guidelines. Managers will prepare Annual Business (including property operating budgets) and Annual Strategic/Tactical Plans for Staff review and approval.

B. Investment Procedure

Farmland investments, in compliance with ARMB's Policies, shall be acquired through the following process:

Separate Accounts:

Annually, Staff will prepare an Investment Plan after reviewing the Annual Business and Strategic/Tactical Plans of the separate account investment managers. This document will recommend, as appropriate, revisions to the ARMB Guidelines, additional allocations to existing managers, and revisions to the Annual Business and Strategic/Tactical Plans of each respective separate account investment manager. Staff shall review the Manager's Annual Business Plans and Annual Strategic/Tactical Plans for consistency with the Annual Investment Plan. Staff will approve all Plans prepared by the Managers.

Investments will be made on a discretionary basis by separate account investment managers in accordance with their approved Annual Business and Strategic/Tactical Plans. Investments will be approved in accordance with Managers' standard internal investment approval process, which may involve levels of authority delegated to senior officers and/or one or more investment committees. Upon the request of ARMB, separate account investment managers will provide copies of their internal Investment Committee reports for each asset purchased.

VIII. DELEGATION OF AUTHORITY

ARMB shall delegate authority to Staff to approve the following:

- Each separate account Manager's detailed property operating budgets for each fiscal year;
- Annual Business Plans and Annual Tactical/Strategic Plans prepared by ARMB's separate account Managers;
- Revised property operating budgets and variances in approved Annual Business Plans for unanticipated, significant leasing activity; and
- Line item variances in approved capital expenditure budgets in amounts up to \$500,000 with a cumulative fiscal year maximum of \$3,000,000 per Investment Manager for other capital expenditures not related to leasing activity (such as repairs for building damage or defects).

IX. CONFIDENTIALITY

Pursuant to 15 AAC 112.770, ARMB shall withhold from other persons all information furnished to it by Manager(s) or Consultant(s) which is reasonably designated by Manager(s) or Consultant(s) as being confidential or proprietary, within the meaning of Alaska Statutes regarding rights to public information, except to the extent that the information is needed by ARMB in order to adequately report on the status and performance of the portfolio, or to comply with a court subpoena or with an official criminal investigation.

Those portions of reports provided pursuant to Part II section I (Reporting System) of these Guidelines shall be considered confidential pursuant to 15 AAC 112.770 to the extent that information is reasonably designated by Manager(s) as being confidential or proprietary, or to the extent the disclosure of which would unfairly prejudice the ability of Manager(s) or ARMB to manage, lease, market or sell such property or Assets.

X. REVISIONS

This document is to be reviewed no less than annually and revised as appropriate.

XI. FARMLAND SEPARATE ACCOUNT INVESTMENT MANAGERS

The following investment managers will acquire institutional-grade farmland properties on a discretionary basis for the Alaska Retirement Management Board:

UBS Farmland Investors LLC

James B. McCandless
10 State House Square, 15th Floor
Hartford, CT 06103-3604
Telephone: 860-616-9200
Fax: 860-616-9204
E-mail: james.mccandless@ubs.com

Web site: www.ubs.com

Attachment 1

FARMLAND INVESTMENT POLICIES, PROCEDURES AND GUIDELINES - Delegation of Responsibilities "Attachment 1"					
	Frequency	Separate Account Investment Managers	Consultant	Staff	Board
Farmland Investment Policies Procedures and Guidelines Review and Revise	Annually			P, R	A
Separate Account Investment Manager Selection Request for Proposals (RFP)	Periodically		P, G, R	P, G, R	A
Farmland Investment Plan	Annually			P, R	A
Separate Account Business Plan and Strategic/Tactical Plan	Annually	P, R		A	
Quarterly Performance	Quarterly		P		
Portfolio/Property Diversification Compliance	Quarterly	P		M	
Geographic Concentration Limit	Quarterly	P		M	
A = Approve G = Grade P = Prepare	R = Recommend M = Monitor				

September 17, 2020



ARMB Board Meeting

Preliminary Investment Performance
Periods Ended June 30, 2020

Steve Center, CFA
Senior Vice President

Paul Erlendson
Senior Vice President

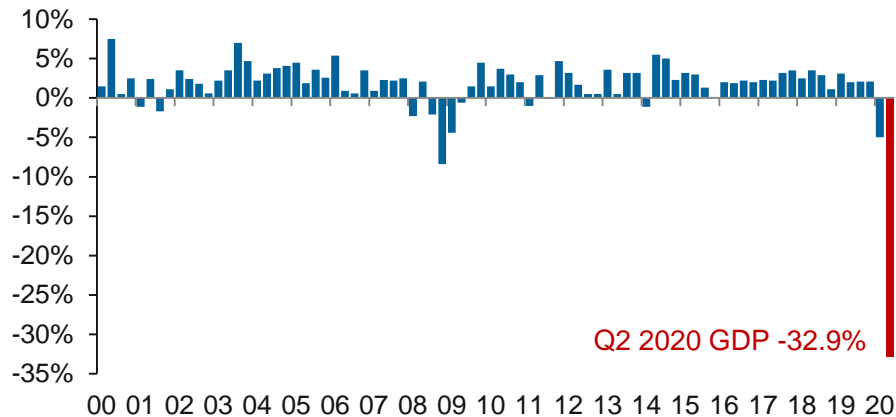
Agenda

- Market and Economic Environment
- Total Fund Performance
 - Defined Benefit Plans' Major Asset Classes
 - Participant-Directed Plans

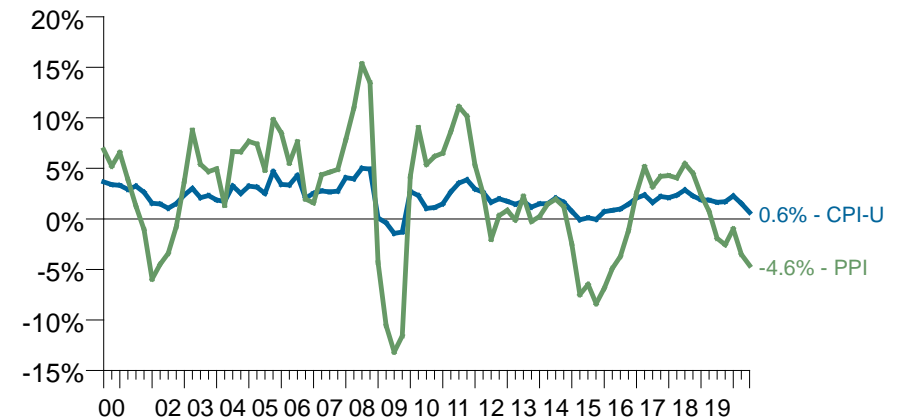
U.S. Economy—Summary

For periods ended June 30, 2020

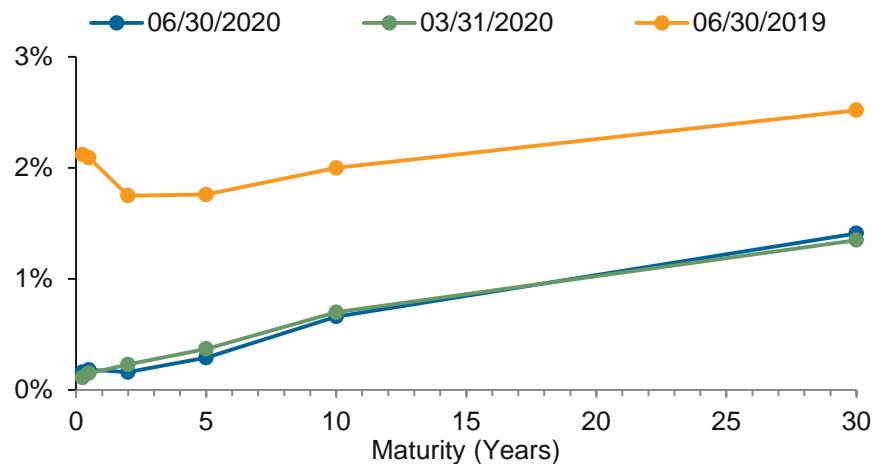
Quarterly Real GDP Growth



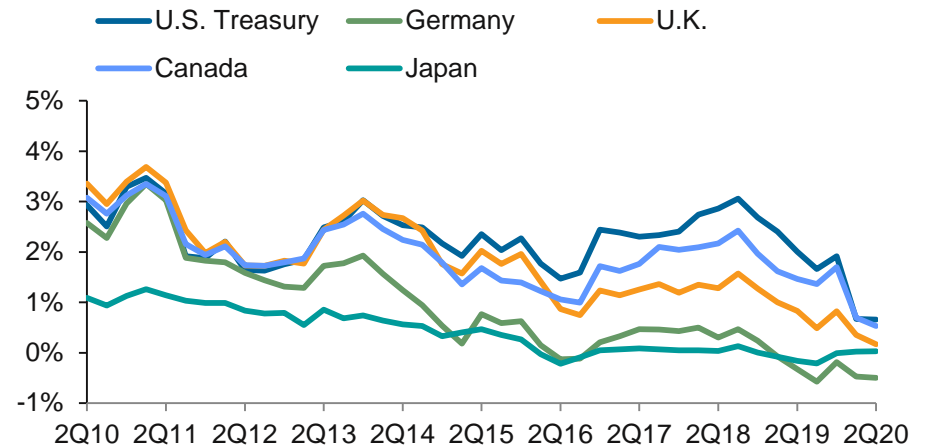
Inflation Year-Over-Year



U.S. Treasury Yield Curves



10-Year Global Government Bond Yields



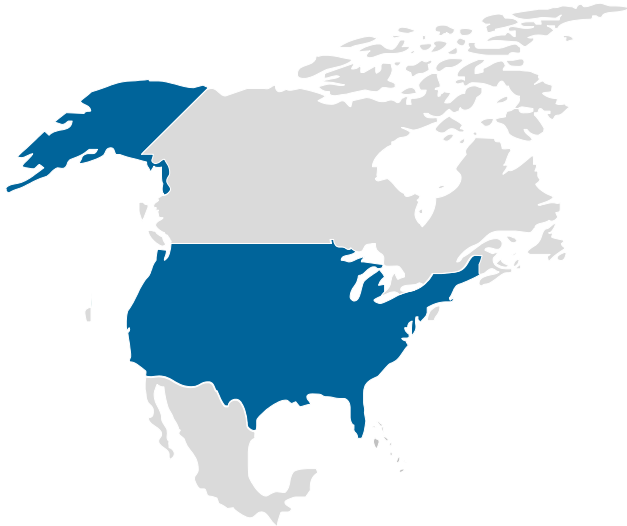
Sources: Bloomberg, Bureau of Labor Statistics, Callan

Market Environment: 2Q20

High degree of uncertainty

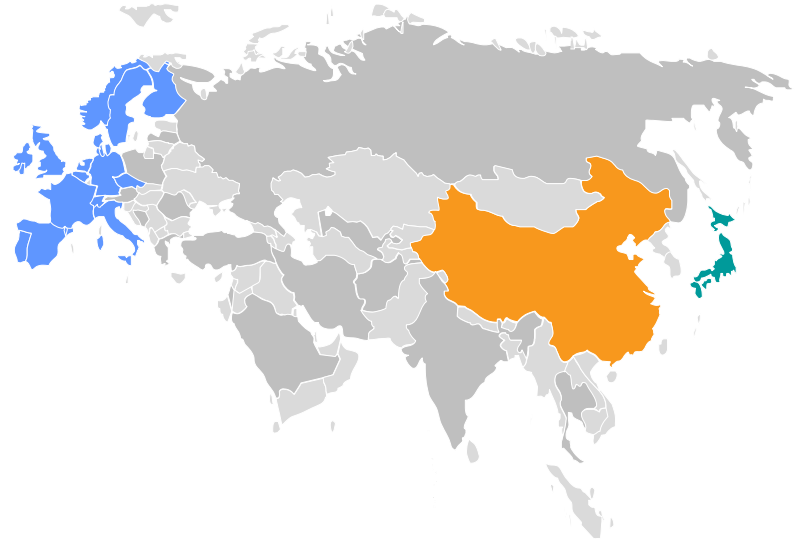
U.S.

- GDP declined 32.9% in 2Q
 - *PCE decline by 10.5% from 1Q levels, despite a 9.7% rise in real disposable income in the second quarter*
 - *Exports, inventories, investment, and local and state government spending also declined*
- Retail sales, durable goods, personal spending rebounded in May but not fully recovered
- Unemployment (11.1% in June) remains elevated
- Housing benefited from relatively low mortgage rates
- Fed left rates close to 0% and expects to be on hold until at least 2022



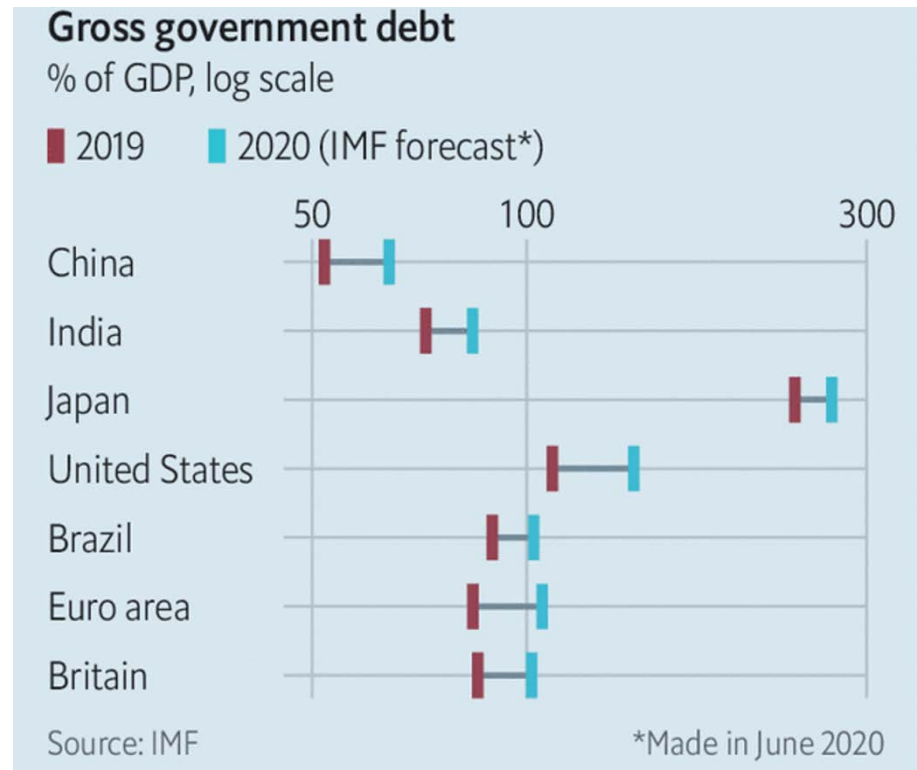
Overseas

- Euro zone 1Q GDP contracted 3.8%; largest quarterly drop on record
- U.K. GDP sank 20% in April, most ever
- Japan's economy shrank 4.4% in April
- China's GDP fell 6.8% in 1Q, first contraction in 28 years.
 - *Chinese government unveiled fiscal stimulus of US\$506 bn, bringing budget deficit to a record high of 3.6% of GDP.*
 - *Growth is expected to be positive in 2Q.*



IMF GDP Forecasts for 2020

From bad to worse

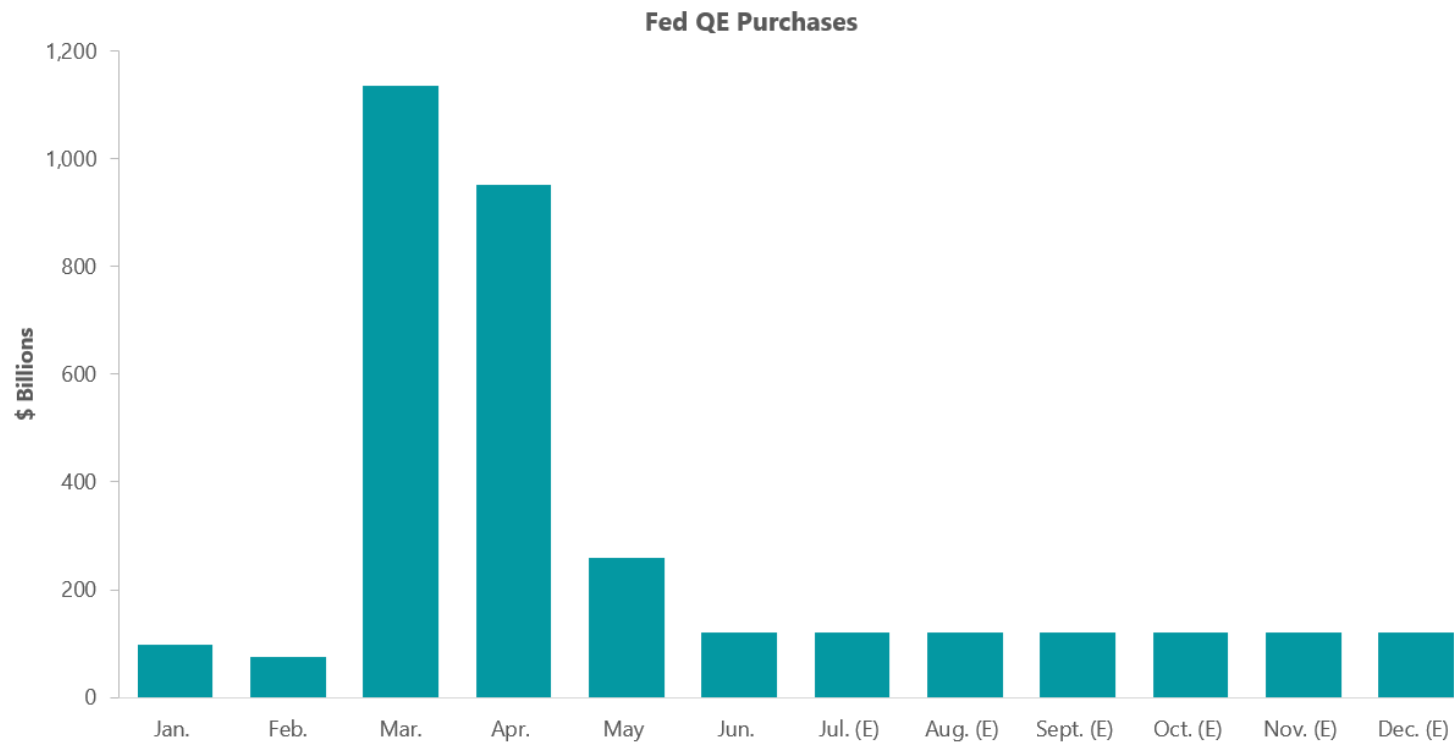


On June 24th the IMF said the economic slump caused by the COVID-19 pandemic would be worse than forecast in April, and that governments would be left more indebted as a result.

- The fund thinks advanced economies' combined GDP at the end of 2021 will still be lower than it was in the first quarter of 2019.
- But it warned of an unusual degree of uncertainty surrounding the numbers, which assume persistent social distancing, lower productivity, and widespread economic scarring.

Source: The Economist

Fed Supplied a Tsunami of Liquidity



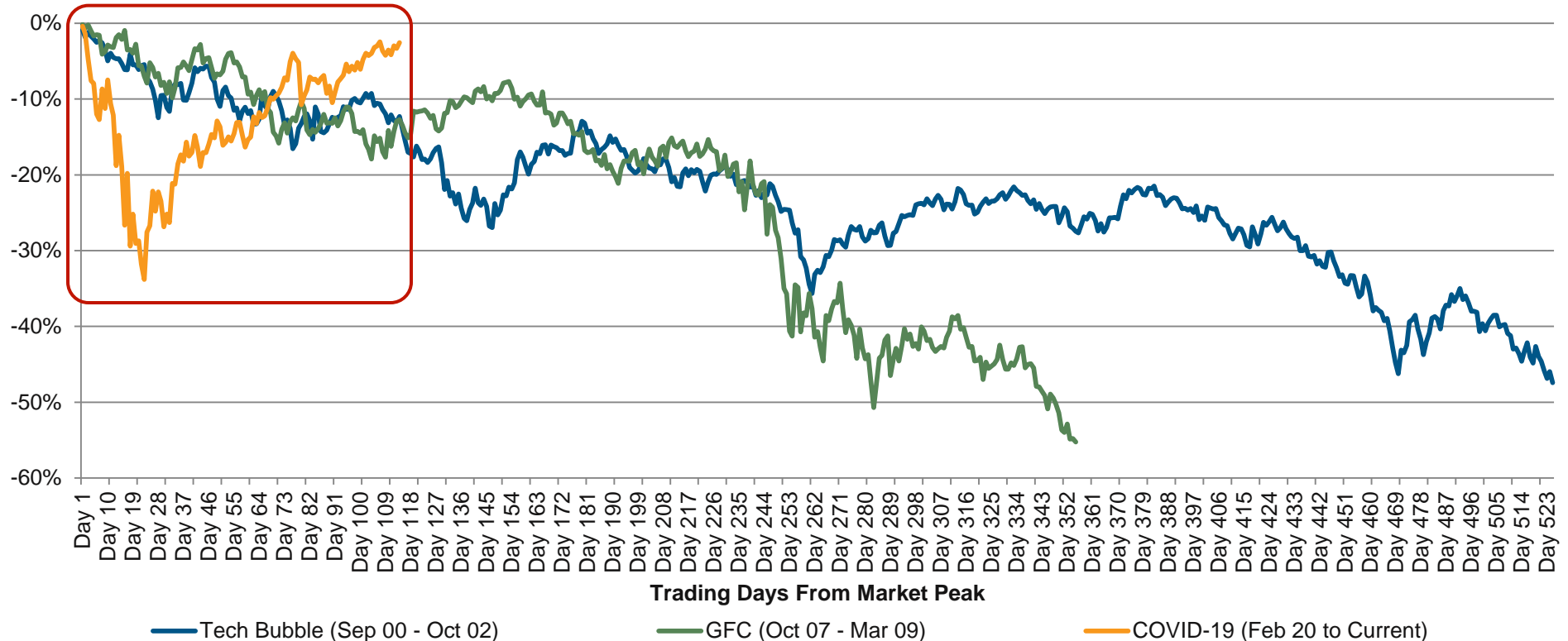
- The Fed's ~\$3T increase in its balance sheet has buoyed markets.
- Going forward, \$225B in monthly Treasury issuance will be a liquidity drag vs. \$120B in expected monthly QE.

Sources: Clearbridge Investments; Federal Reserve Bank of New York

Unprecedented Shock to Global Capital Markets

‘Global Hurricane’ in the form of a pandemic

S&P 500 Index Cumulative Returns
Market Peak-to-Trough for Recent Corrections vs.
Current Path of COVID-19 Correction Through 7/31/20

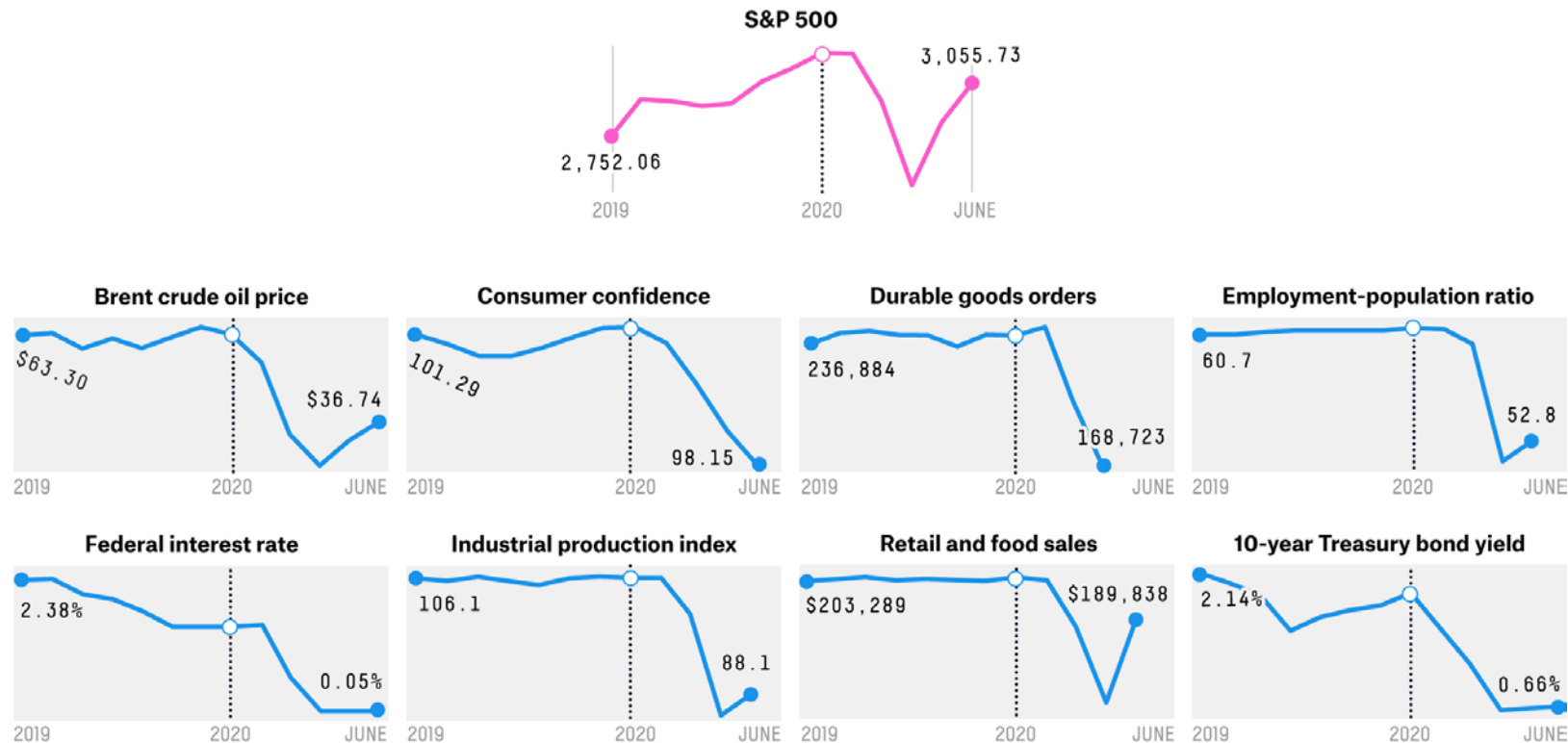


The sharpest and fastest equity market decline ever: 16 trading days to reach bear market; -33% after just 23 days.

Swift Recovery for Equities; Did Investors Get Ahead of Themselves?

The stock market is up while most economic indicators are down

Various economic indicators, reported at one-month intervals, June 2019 through June 2020



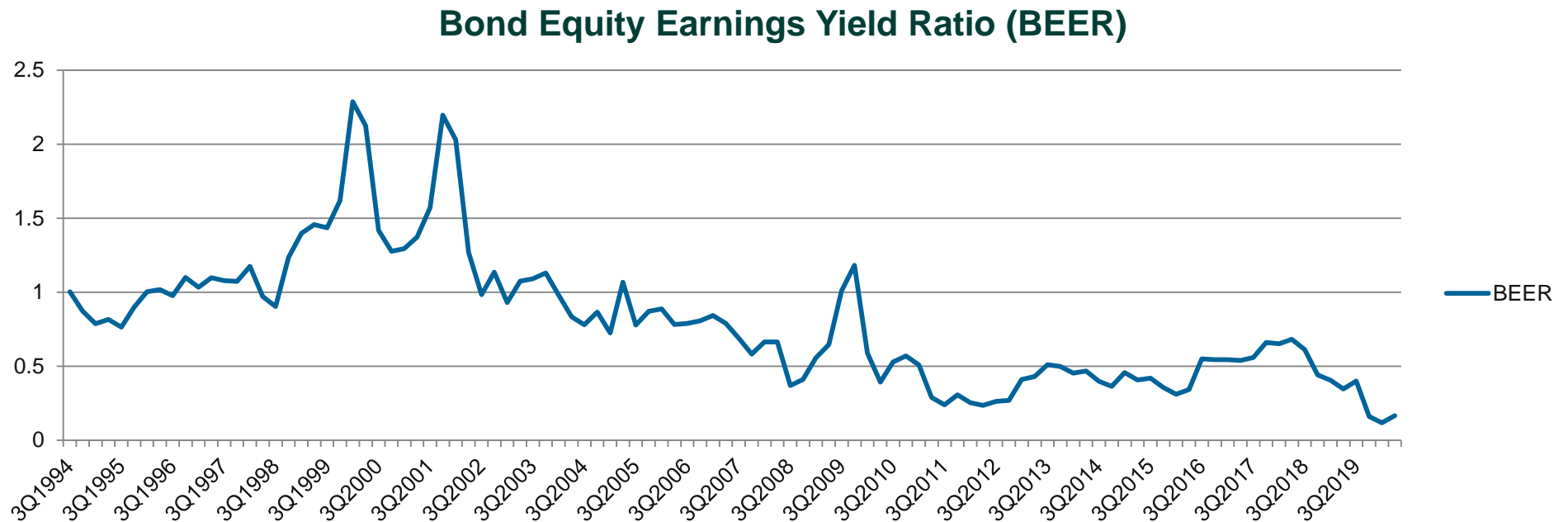
Any economic indicator reported more frequently than once a month is charted here using data from the first day of each month.

FiveThirtyEight

SOURCES: YAHOO FINANCE, OECD, FEDERAL RESERVE BANK OF ST. LOUIS

- As of July 17, U.S. stock market recouped its YTD loss – how can that be?
 - Supreme confidence in efficacy of monetary and fiscal policy
 - Apple, Alphabet (Google), Microsoft, Facebook, Amazon are up 35% in 2Q20 and made up 30% of the S&P 500 return, even though they represent 20% of market cap.

Bond Equity Earnings Yield Ratio



- Calculated as 10-year Treasury yield / S&P 500 earnings yield.
- When the “BEER” is lower than 1.0, it means that stocks are providing investors with more income than bonds.
- A BEER below 1.0 suggests that stocks are cheaper than bonds based on the amount of yield a dollar produces.
- In general, one would expect BEER to be higher than 1.0, meaning the income from bonds (coupon) is greater than the income from stocks (dividend).

Callan Periodic Table of Investment Returns

Trailing periods as of June 30, 2020

Annual Returns					Trailing Periods				Quarterly Returns		
2015	2016	2017	2018	2019	1-Year	3-Year	5-Year	10-Year	1Q20	2Q20	YTD 2020
Large Cap Equity	Small Cap Equity	Emerging Market Equity	U.S. Fixed Income	Large Cap Equity	U.S. Fixed Income	Large Cap Equity	Large Cap Equity	Large Cap Equity	U.S. Fixed Income	Small Cap Equity	U.S. Fixed Income
1.38%	21.31%	37.28%	0.01%	31.49%	8.74%	10.73%	10.73%	13.99%	3.15%	25.42%	6.14%
U.S. Fixed Income	High Yield	Dev ex-U.S. Equity	High Yield	Small Cap Equity	Large Cap Equity	U.S. Fixed Income	High Yield	Small Cap Equity	Global ex-U.S. Fixed Income	Large Cap Equity	Global ex-U.S. Fixed Income
0.55%	17.13%	24.21%	-2.08%	25.52%	7.51%	5.32%	4.79%	10.50%	-2.68%	20.54%	0.61%
Real Estate	Large Cap Equity	Large Cap Equity	Global ex-U.S. Fixed Income	Dev ex-U.S. Equity	Global ex-U.S. Fixed Income	High Yield	U.S. Fixed Income	High Yield	High Yield	Emerging Market Equity	Large Cap Equity
-0.79%	11.96%	21.83%	-2.15%	22.49%	0.71%	3.33%	4.30%	6.68%	-12.68%	18.08%	-3.08%
Dev ex-U.S. Equity	Emerging Market Equity	Small Cap Equity	Large Cap Equity	Real Estate	High Yield	Global ex-U.S. Fixed Income	Small Cap Equity	Real Estate	Large Cap Equity	Dev ex-U.S. Equity	High Yield
-3.04%	11.19%	14.65%	-4.38%	21.91%	0.03%	2.52%	4.29%	6.30%	-19.60%	15.34%	-3.80%
Small Cap Equity	Real Estate	Global ex-U.S. Fixed Income	Real Estate	Emerging Market Equity	Emerging Market Equity	Small Cap Equity	Global ex-U.S. Fixed Income	Dev ex-U.S. Equity	Dev ex-U.S. Equity	High Yield	Emerging Market Equity
-4.41%	4.06%	10.51%	-5.63%	18.44%	-3.39%	2.01%	2.89%	5.43%	-23.26%	10.18%	-9.78%
High Yield	Dev ex-U.S. Equity	Real Estate	Small Cap Equity	High Yield	Dev ex-U.S. Equity	Emerging Market Equity	Emerging Market Equity	U.S. Fixed Income	Emerging Market Equity	Real Estate	Dev ex-U.S. Equity
-4.47%	2.75%	10.36%	-11.01%	14.32%	-5.42%	1.90%	2.86%	3.82%	-23.60%	10.07%	-11.49%
Global ex-U.S. Fixed Income	U.S. Fixed Income	High Yield	Dev ex-U.S. Equity	U.S. Fixed Income	Small Cap Equity	Dev ex-U.S. Equity	Dev ex-U.S. Equity	Emerging Market Equity	Real Estate	Global ex-U.S. Fixed Income	Small Cap Equity
-6.02%	2.65%	7.50%	-14.09%	8.72%	-6.63%	0.84%	2.01%	3.27%	-28.53%	3.38%	-12.98%
Emerging Market Equity	Global ex-U.S. Fixed Income	U.S. Fixed Income	Emerging Market Equity	Global ex-U.S. Fixed Income	Real Estate	Real Estate	Real Estate	Global ex-U.S. Fixed Income	Small Cap Equity	U.S. Fixed Income	Real Estate
-14.92%	1.49%	3.54%	-14.57%	5.09%	-16.25%	-1.60%	1.27%	1.98%	-30.61%	2.90%	-21.33%

Sources: ● Bloomberg Barclays Aggregate ● Bloomberg Barclays Corp High Yield ● Bloomberg Barclays Global Aggregate ex US
 ● FTSE EPRA Nareit Developed ● MSCI World ex USA ● MSCI Emerging Markets ● Russell 2000 ● S&P 500

Stunning Recovery in Global Equity Markets in 2Q20

V-shaped equity rebound, ahead of the global economy

Global equity rally after March market bottom

- S&P -33% from peak (02/19/20) to low on 3/23/20
- Sharp rebound since March, suggesting broad-based recovery, but YTD results concentrated in a few stocks
- Fed cut rates to zero, commenced QE, instituted multiple facilities to backstop money markets, credit markets, and economy.
 - *Fed expects to get paid back*
 - *Further fiscal stimulus expected*
- Congress passed fiscal stimulus (CARES) to carry the economy through the crisis.
- Economic recovery will be uncertain as COVID-19 infections continue; re-openings may be reversed.

Returns for Periods ended June 30, 2020

	1 Quarter	1 Year	5 Years	10 Years	25 Years
U.S. Equity					
Russell 3000	22.03	6.53	10.03	13.72	9.28
S&P 500	20.54	7.51	10.73	13.99	9.27
Russell 2000	25.42	-6.63	4.29	10.50	8.16
Global ex-U.S. Equity					
MSCI World ex USA	15.34	-5.42	2.01	5.43	4.68
MSCI Emerging Markets	18.08	-3.39	2.86	3.27	--
MSCI ACWI ex USA Small Cap	22.83	-4.34	2.50	6.05	5.51
Fixed Income					
Bloomberg Barclays Aggregate	2.90	8.74	4.30	3.82	5.36
90-day T-Bill	0.02	1.63	1.19	0.64	2.37
Bloomberg Barclays Long Gov/Credit	6.23	18.91	8.98	7.84	7.72
Bloomberg Barclays Global Agg ex-US	3.38	0.71	2.89	1.98	3.73
Real Estate					
NCREIF Property	0.71	4.46	7.13	9.89	9.22
FTSE Nareit Equity	11.82	-13.04	4.06	9.05	9.48
Alternatives					
CS Hedge Fund	6.20	-0.73	1.55	3.83	7.49
Cambridge Private Equity*	5.36	16.14	12.64	13.57	15.29
Bloomberg Commodity	5.08	-17.38	-7.69	-5.82	0.75
Gold Spot Price	12.77	27.36	8.97	3.75	6.36
Inflation - CPI-U	-0.12	0.65	1.56	1.69	2.12

*Cambridge PE data through 12/31/19

Sources: Bloomberg, Bloomberg Barclays, Callan, Cambridge, Credit Suisse, FTSE Russell, MSCI, NCREIF, S&P Dow Jones Indices

U.S. Equity Performance

Cyclicals snap back though Tech still favored

- Consumer Discretionary fared best (+32.9%) as consumer activity recovered along with economies reopening.
- Energy (+30.5%) and Materials (+26.0%) also regained ground.
- Tech (+30.5%) remains an investor favorite in seemingly every market environment.

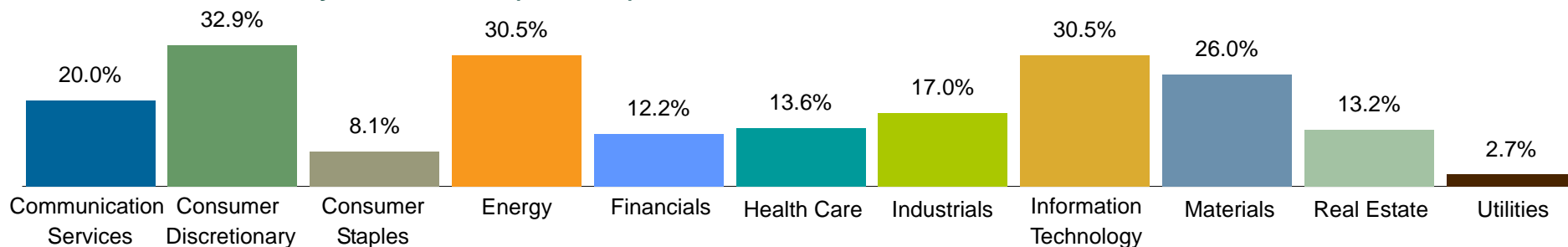
Large cap outpaces small cap for quarter

- The small cap Russell 2000 Index followed up its worst quarter on record (1Q20: -30.6%) with its third-best quarter on record (2Q20: +25.4%).

Growth outpaces value across market capitalizations

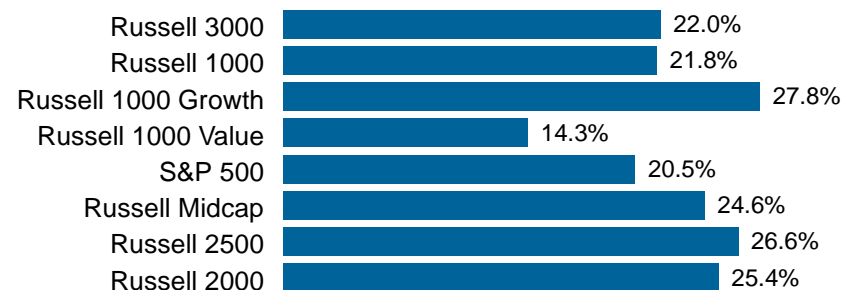
- Spread between Russell 1000 Growth (+27.8%) and Russell 1000 Value (+14.3%) second widest on record.
- Spread between Russell 2000 Growth (+30.6%) and Russell 2000 Value (+18.9%) fourth widest on record.

Economic Sector Quarterly Performance (S&P 500)

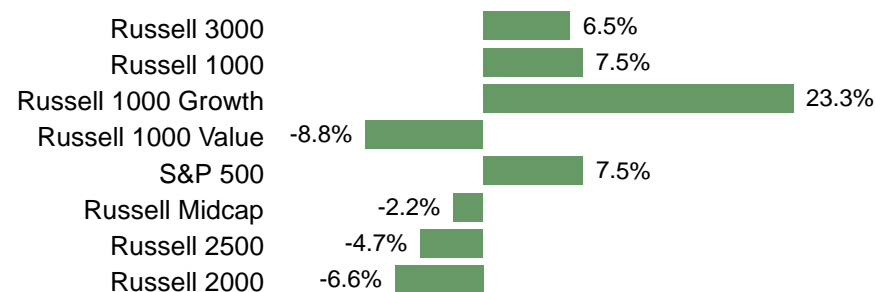


Sources: FTSE Russell, S&P Dow Jones Indices

U.S. Equity: Quarterly Returns

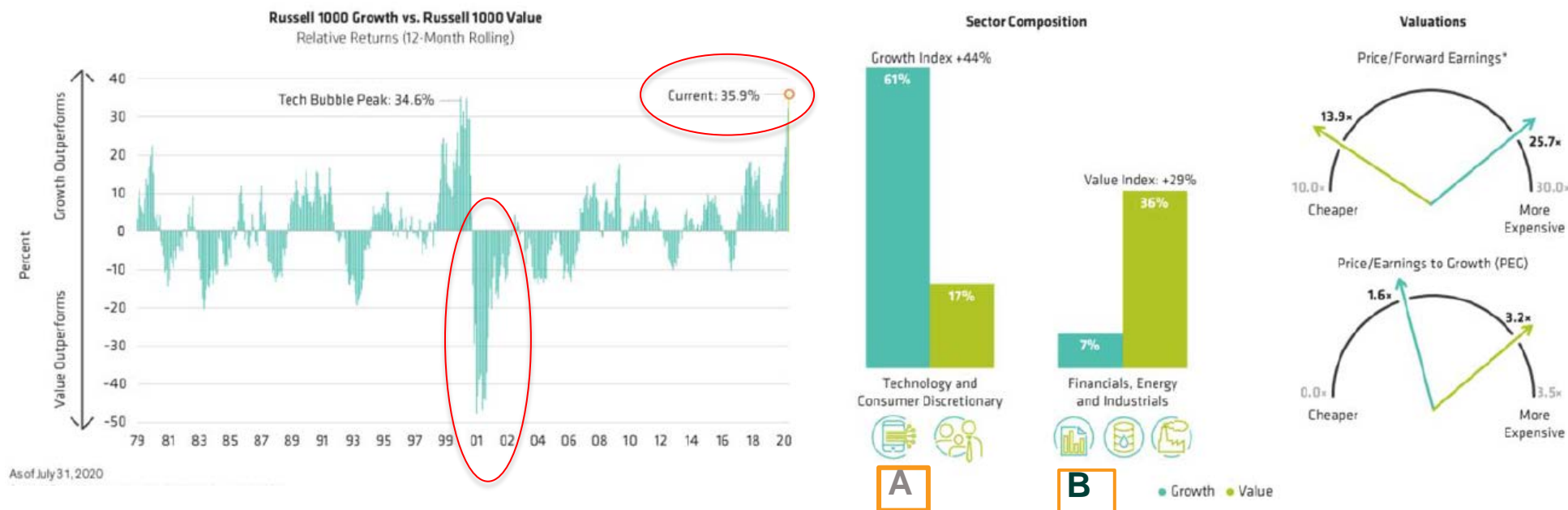


U.S. Equity: One-Year Returns



The Growth Advantage over Value Continues

The pond matters more than the fisherman's skills



Year-to-Date Through July 1, 2020

A		B	
Russell 3000 Growth	10.30%	Russell 3000 Value	-17.03%
Consumer Disc.	9.11	Energy	-36.95
Technology	15.07	Financials	-24.43
		Industrials	-15.04

Sources: Russell Investments, FactSet, and AllianceBernstein (A|B)

U.S. Equity Valuations

Regions/Styles: Current NTM P/E vs. 10-Year High, Low, Average



Source: Eaton Vance Monthly Market Monitor, FactSet as of 6/30/20. NTM P/E is market price per share divided by expected earnings per share over the next twelve months.

Global ex-U.S. Equity Performance

Broad-based recovery

- Having just posted the worst quarter in the benchmark's history, the broad MSCI ACWI ex USA gained 16.1% in Q2, a top 10 mark in the history of the index.
- Emerging markets (+18.1%) outperformed the developed markets EAFE Index (+14.9%).
 - *Despite strong performance, both benchmarks trailed compared to U.S. equities.*

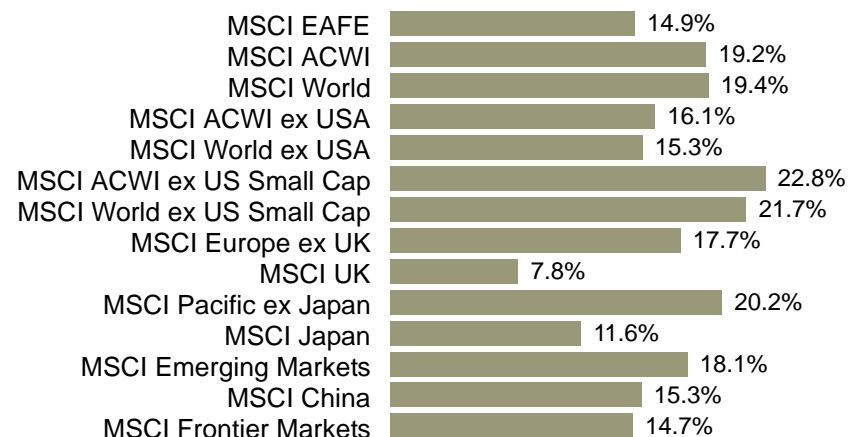
Currencies

- After rallying during the chaos of Q1, safe-haven currencies such as the U.S. dollar and yen sold off in Q2.

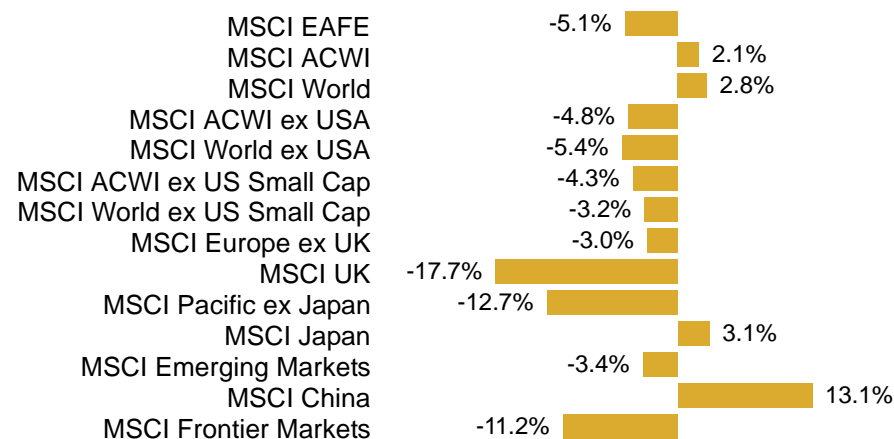
Growth vs. value

- Growth continued to outperform value within markets and capitalizations.

Global Equity: Quarterly Returns



Global Equity: Annual Returns



Source: MSCI

U.S. Fixed Income Performance

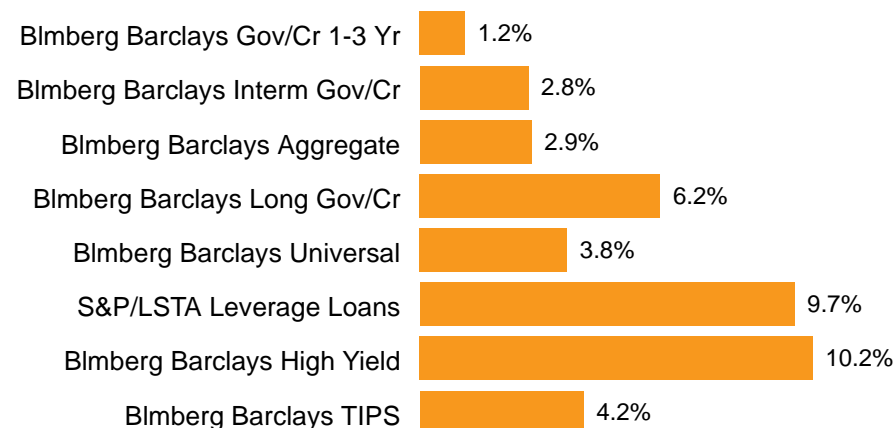
Corporates rallied as risk appetite reemerged

- The riskiest sectors rallied the most with the Bloomberg High Yield Index gaining 10.2% and the S&P/LSTA Leveraged Loan Index climbing 9.7%.
- High yield spreads blew out from the 300-400 bp range to reach double-digits in the first quarter, but tightened meaningfully to end the second quarter at about 625 bps.

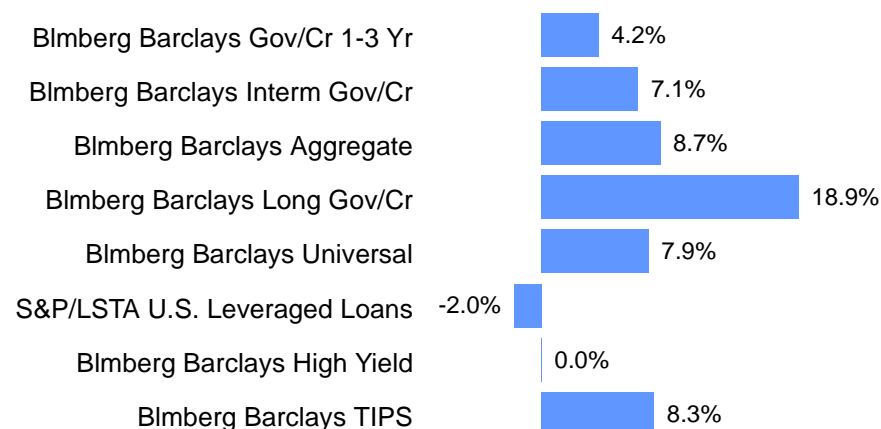
Treasury yields were range-bound

- The Treasury yield curve was little changed over the quarter and sovereign bonds underperformed corporates as a result.
- The 10-year Treasury fell only four basis points and ended the quarter yielding 0.66%.
- TIPS outperformed nominal Treasuries as expectations for inflation recovered somewhat. The 10-year breakeven spread ended the quarter at 134 bps, up from 87 bps last quarter but still down from 177 bps at the end of 2019.

U.S. Fixed Income: Quarterly Returns



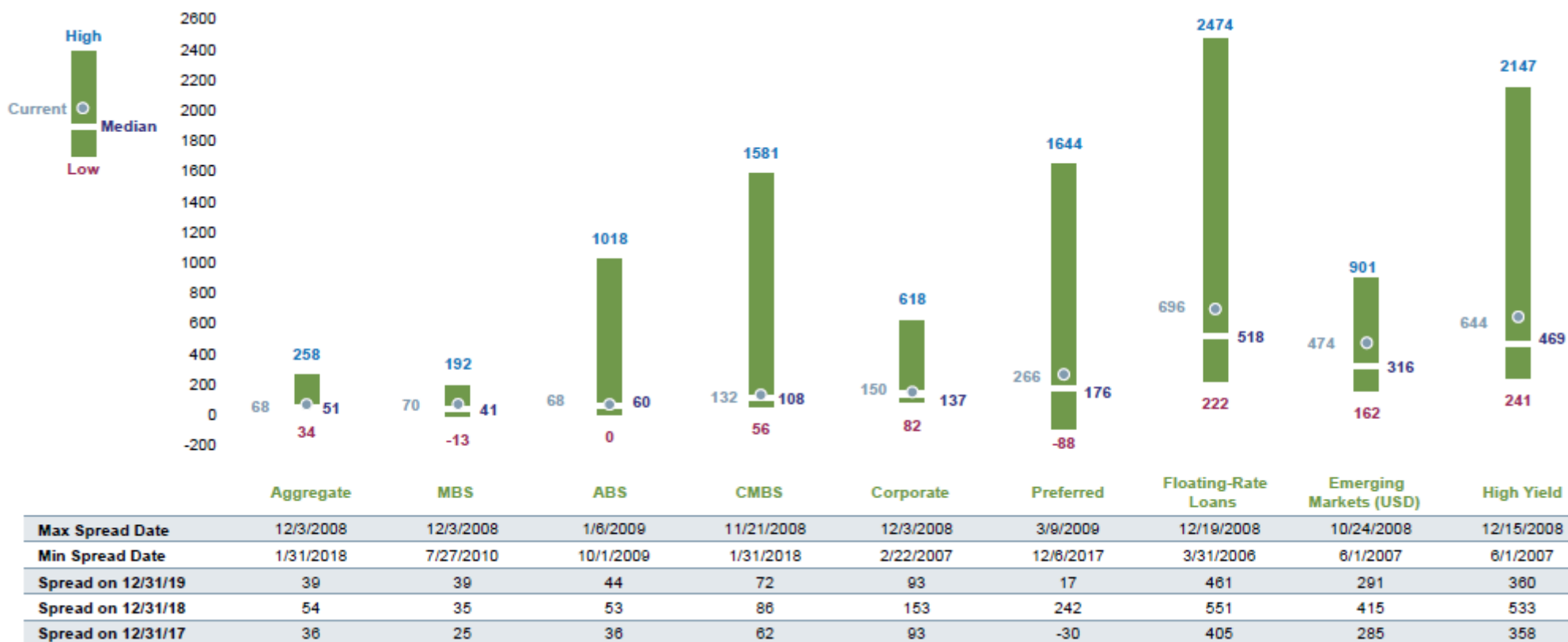
U.S. Fixed Income: Annual Returns



Sources: Bloomberg Barclays, S&P Dow Jones Indices

Fixed Income Valuations

Spread Analysis (bps)



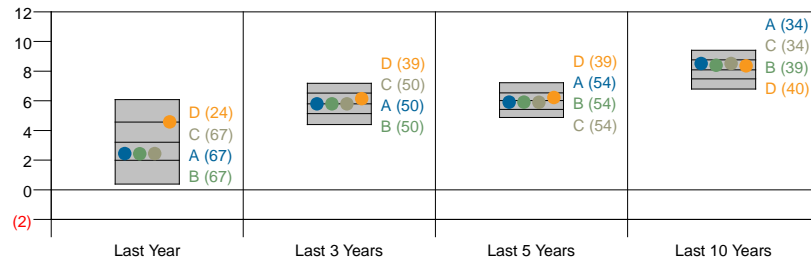
Source: Eaton Vance Monthly Market Monitor, FactSet as of 6/30/20. Spread history measures past 15 years. All fixed-income spreads are in basis points and measure option-adjusted yield spread relative to comparable maturity U.S. Treasuries using daily data. Loan Index spread represents the three-year discounted spread over LIBOR. Aggregate represented by Bloomberg Barclays US Aggregate Index. MBS represented by Bloomberg Barclays U.S. Mortgage Backed Securities (MBS) Index. ABS represented by Bloomberg Barclays U.S. Asset Backed Securities (ABS) Index. CMBS represented by Bloomberg Barclays U.S. CMBS Investment Grade Index. Corporate represented by Bloomberg Barclays U.S. Corporate Investment Grade Index. Preferred represented by ICE BofA Fixed Rate Preferred Securities Index. Floating-Rate Loans represented by S&P/LSTA Leveraged Loan Index. Emerging Markets(USD) represented by J.P. Morgan Emerging Markets Bond Index (EMBI) Global Diversified. High Yield represented by ICE BofAUS High Yield Index.

Callan

Pension Plan

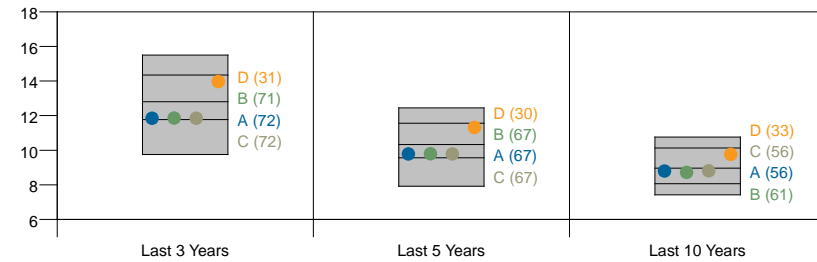
PERS, TRS, and JRS Performance Dashboard – June 30, 2020

Returns vs Callan Public Fund Sponsor Database



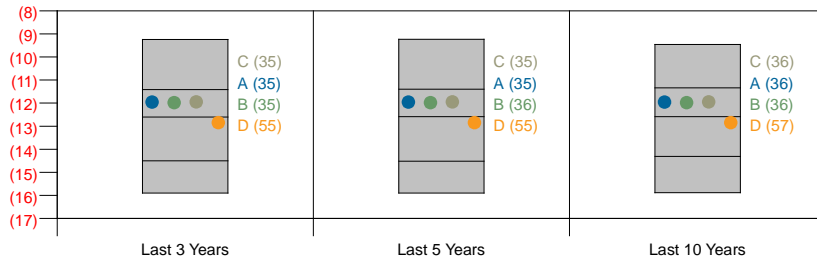
10th Percentile	6.09	7.18	7.22	9.42
25th Percentile	4.57	6.53	6.54	8.76
Median	3.22	5.80	6.02	8.09
75th Percentile	1.99	5.14	5.43	7.48
90th Percentile	0.39	4.40	4.88	6.80
Member Count	210	210	209	188
Employees' Total Plan	2.45	5.80	5.91	8.52
Teachers' Total Plan	2.44	5.80	5.91	8.41
Judicial Total Plan	2.45	5.81	5.91	8.52
Policy Target	4.58	6.15	6.22	8.37

Standard Deviation vs Callan Public Fund Sponsor Database



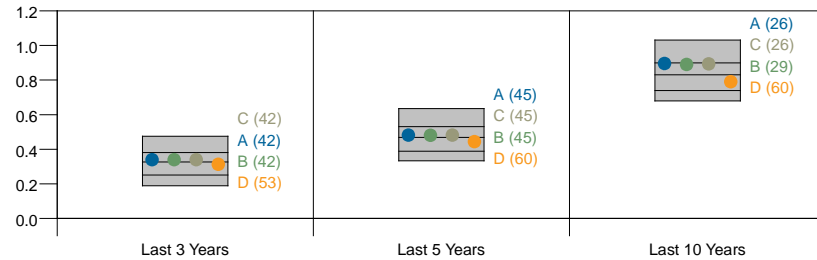
10th Percentile	15.51	12.46	10.77
25th Percentile	14.35	11.57	10.14
Median	12.81	10.34	8.97
75th Percentile	11.77	9.57	8.07
90th Percentile	9.76	7.93	7.43
Member Count	210	209	188
Employees' Total Plan	11.86	9.79	8.80
Teachers' Total Plan	11.87	9.80	8.73
Judicial Total Plan	11.85	9.79	8.81
Policy Target	13.97	11.32	9.77

Maximum Drawdown vs Callan Public Fund Sponsor Database



10th Percentile	(9.24)	(9.22)	(9.45)
25th Percentile	(11.41)	(11.39)	(11.34)
Median	(12.60)	(12.59)	(12.58)
75th Percentile	(14.50)	(14.51)	(14.31)
90th Percentile	(15.90)	(15.90)	(15.88)
Member Count	210	209	188
Employees' Total Plan	(11.95)	(11.95)	(11.95)
Teachers' Total Plan	(11.97)	(11.97)	(11.97)
Judicial Total Plan	(11.94)	(11.94)	(11.94)
Policy Target	(12.84)	(12.84)	(12.84)

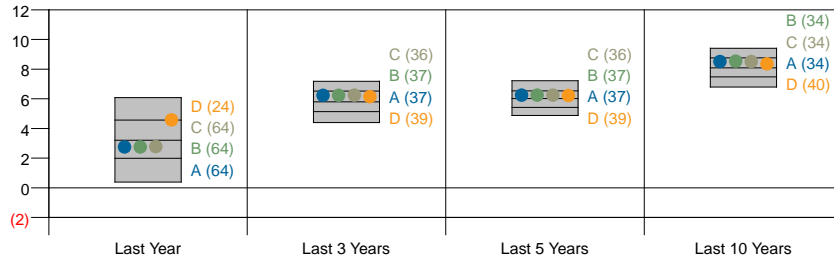
Sharpe Ratio vs Callan Public Fund Sponsor Database



10th Percentile	0.48	0.64	1.03
25th Percentile	0.38	0.53	0.90
Median	0.33	0.47	0.83
75th Percentile	0.25	0.39	0.74
90th Percentile	0.19	0.33	0.68
Member Count	210	209	188
Employees' Total Plan	0.34	0.48	0.90
Teachers' Total Plan	0.34	0.48	0.89
Judicial Total Plan	0.34	0.48	0.89
Policy Target	0.31	0.44	0.79

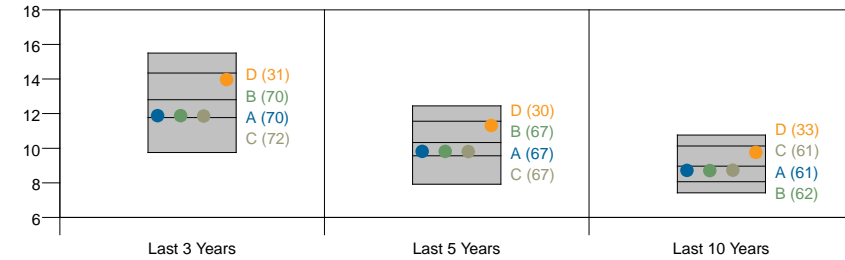
Health Care Plans Performance Dashboard – June 30, 2020

Returns vs Callan Public Fund Sponsor Database



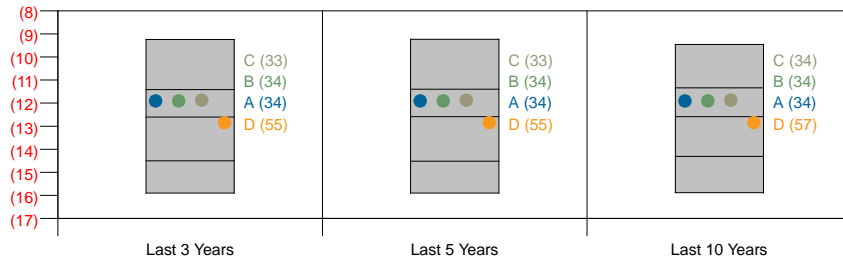
10th Percentile	6.09	7.18	7.22	9.42
25th Percentile	4.57	6.53	6.54	8.76
Median	3.22	5.80	6.02	8.09
75th Percentile	1.99	5.14	5.43	7.48
90th Percentile	0.39	4.40	4.88	6.80
Member Count	210	210	209	188
PERS Health Plan	2.75	6.25	6.25	8.52
TRS Health Plan	2.76	6.25	6.26	8.55
JRS Health Plan	2.78	6.26	6.26	8.52
Policy Target	4.58	6.15	6.22	8.37

Standard Deviation vs Callan Public Fund Sponsor Database



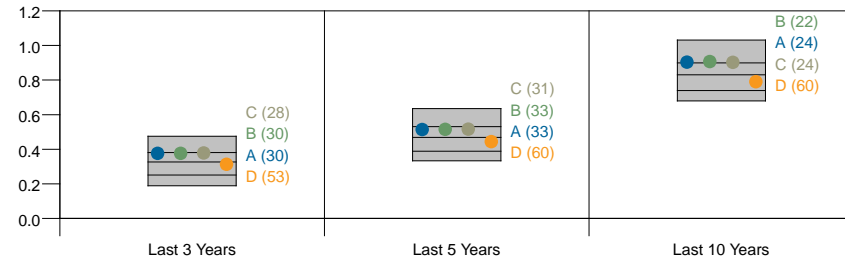
10th Percentile	15.51	12.46	10.77
25th Percentile	14.35	11.57	10.14
Median	12.81	10.34	8.97
75th Percentile	11.77	9.57	8.07
90th Percentile	9.76	7.93	7.43
Member Count	210	209	188
PERS Health Plan	11.89	9.83	8.72
TRS Health Plan	11.89	9.83	8.71
JRS Health Plan	11.87	9.81	8.73
Policy Target	13.97	11.32	9.77

Maximum Drawdown vs Callan Public Fund Sponsor Database



10th Percentile	(9.24)	(9.22)	(9.45)
25th Percentile	(11.41)	(11.39)	(11.34)
Median	(12.60)	(12.59)	(12.58)
75th Percentile	(14.50)	(14.51)	(14.31)
90th Percentile	(15.90)	(15.90)	(15.88)
Member Count	210	209	188
PERS Health Plan	(11.90)	(11.90)	(11.90)
TRS Health Plan	(11.90)	(11.90)	(11.90)
JRS Health Plan	(11.87)	(11.87)	(11.87)
Policy Target	(12.84)	(12.84)	(12.84)

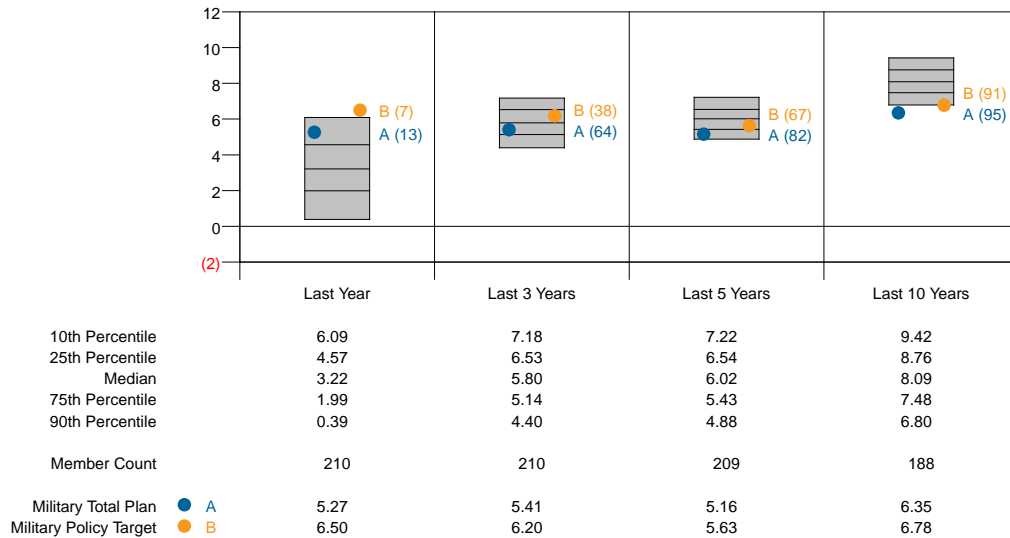
Sharpe Ratio vs Callan Public Fund Sponsor Database



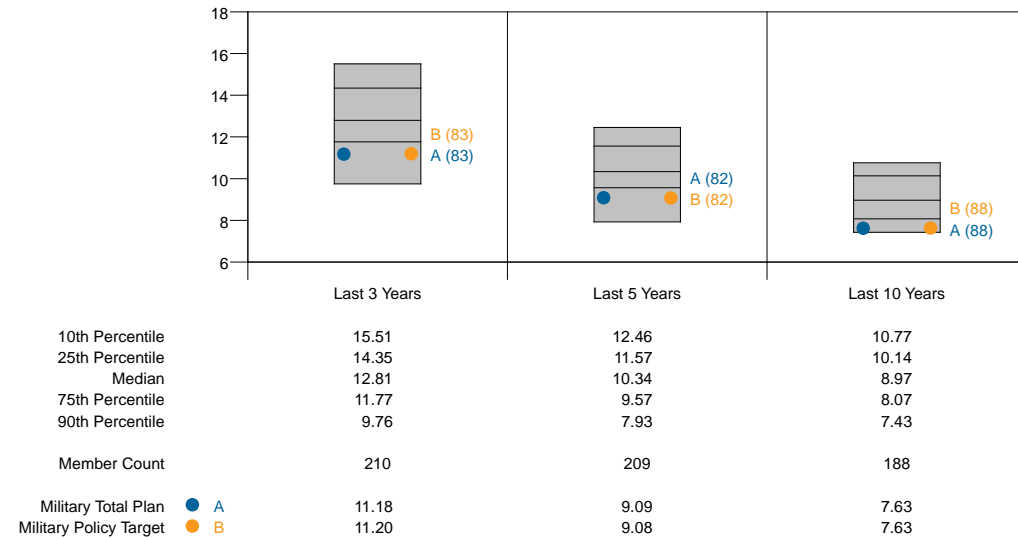
10th Percentile	0.48	0.64	1.03
25th Percentile	0.38	0.53	0.90
Median	0.33	0.47	0.83
75th Percentile	0.25	0.39	0.74
90th Percentile	0.19	0.33	0.68
Member Count	210	209	188
PERS Health Plan	0.38	0.52	0.90
TRS Health Plan	0.38	0.52	0.91
JRS Health Plan	0.38	0.52	0.90
Policy Target	0.31	0.44	0.79

Military Plan Performance Dashboard – June 30, 2020

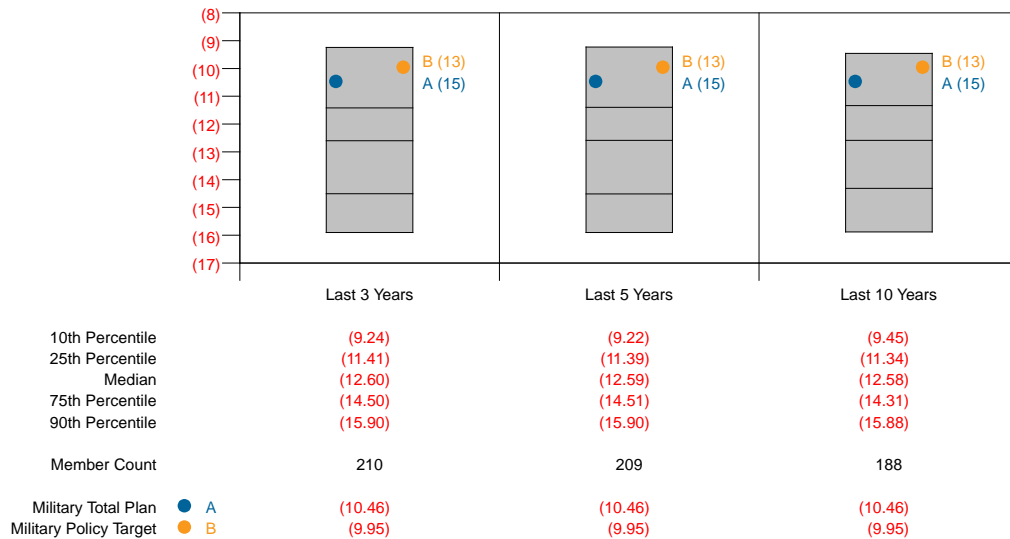
Returns vs Callan Public Fund Sponsor Database



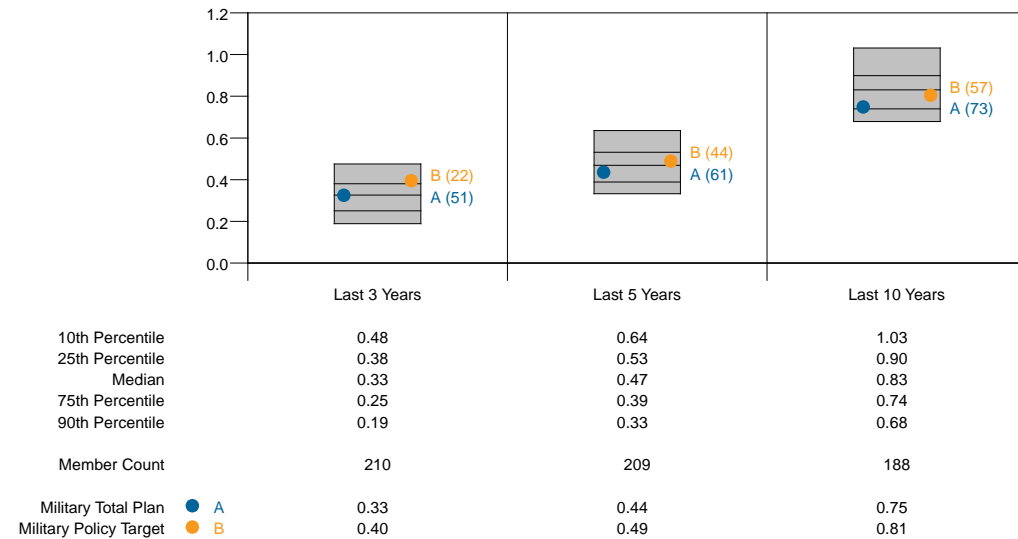
Standard Deviation vs Callan Public Fund Sponsor Database



Maximum Drawdown vs Callan Public Fund Sponsor Database



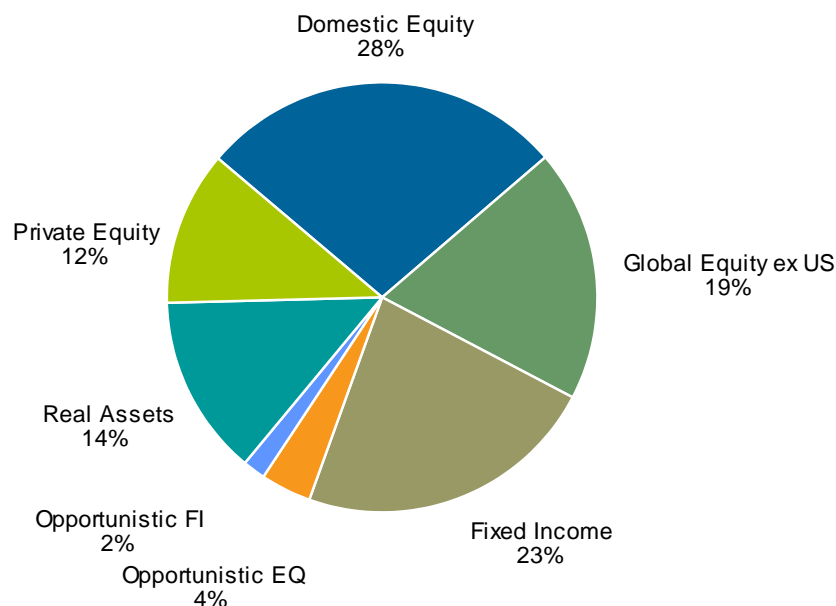
Sharpe Ratio vs Callan Public Fund Sponsor Database



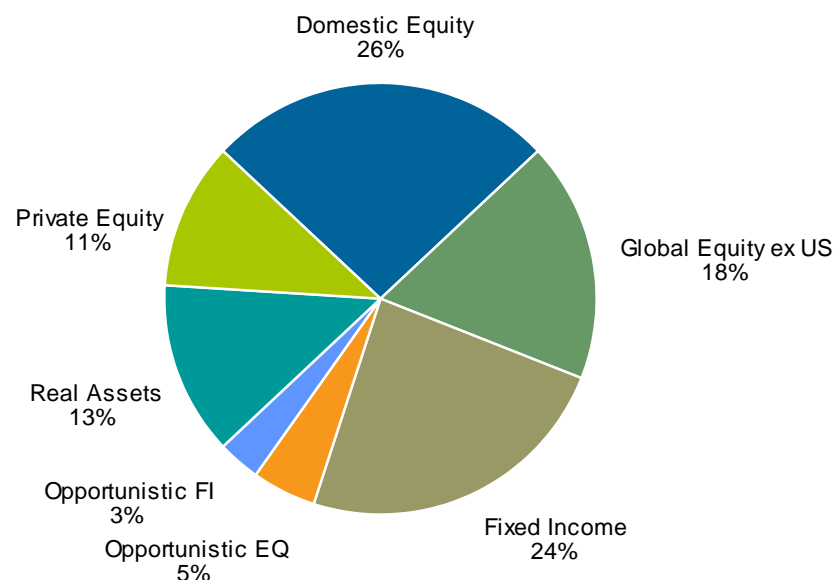
Asset Allocation – Public Employees’ Retirement System

Quarter Ending June 30, 2020

Actual Asset Allocation



Target Asset Allocation



Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Domestic Equity	2,578,937	27.5%	26.0%	1.5%	142,217
Global Equity ex US	1,779,251	19.0%	18.0%	1.0%	92,291
Fixed Income	2,136,221	22.8%	24.0%	(1.2%)	(113,059)
Opportunistic EQ	353,880	3.8%	4.8%	(1.0%)	(95,976)
Opportunistic FI	159,458	1.7%	3.2%	(1.5%)	(140,446)
Real Assets	1,273,193	13.6%	13.0%	0.6%	53,895
Private Equity	1,091,061	11.6%	11.0%	0.6%	59,204
Total	9,372,002	100.0%	100.0%		

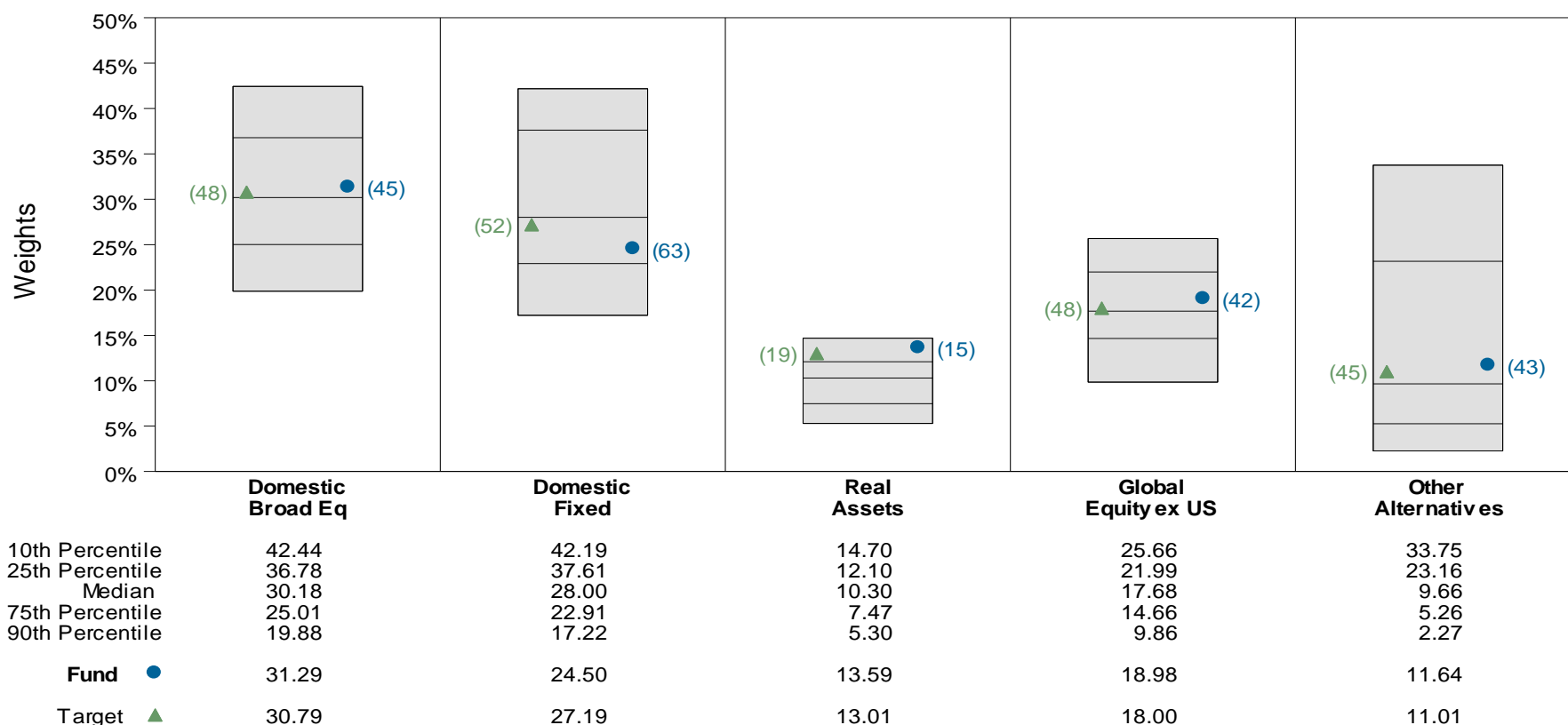
PERS is used as illustrative throughout the presentation.

The other plans exhibit similar modest and understandable variations from strategic target allocations.

Asset Allocation vs. Public Funds (PERS)

Callan Public Fund Database

Asset Class Weights vs Callan Public Fund Sponsor Database



- Public equities are slightly overweight and fixed income is underweight after the market rebound in the quarter.
 - Following a recent asset allocation revision, fixed income target is now in line with the “average” weighting of other public funds after being historically underweight by a wide margin.
- Weightings to real assets and alternatives are relatively high in comparison to other public funds.

*Note that “Other Alternatives” represents private equity

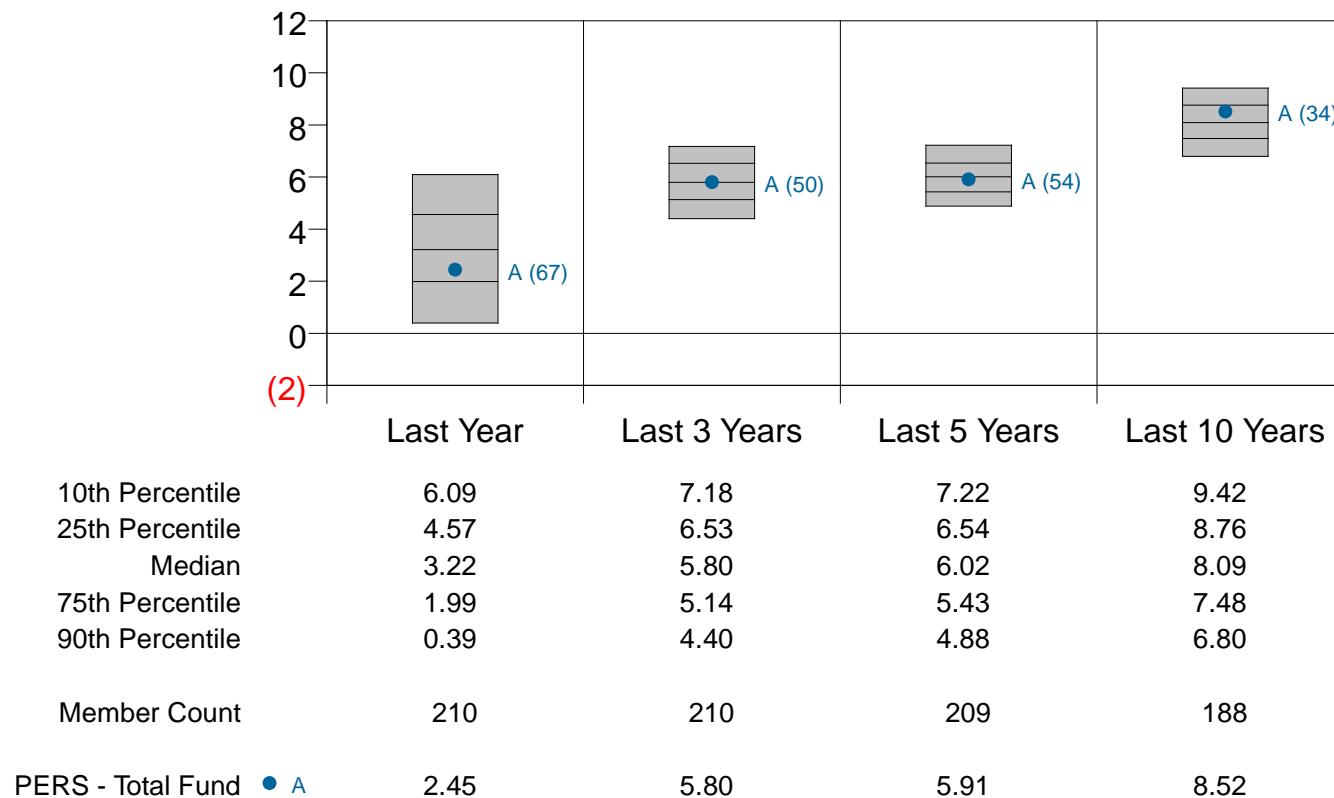
Total Fund Return vs Public Funds (PERS)

Callan Public Fund Database

Returns

for Periods Ended June 30, 2020

Group: Callan Public Fund Sponsor Database



- Despite the recent change to the asset allocation, longer-term performance reflects ARMB's prior orientation toward capital growth as opposed to income generation.
- Medium-term performance is near median and longer term performance is above median.

Total Fund Sharpe Ratio Rankings vs Public Funds (PERS)

Callan Public Fund Database

Sharpe Ratio
for Periods Ended June 30, 2020
Group: Callan Public Fund Sponsor Database

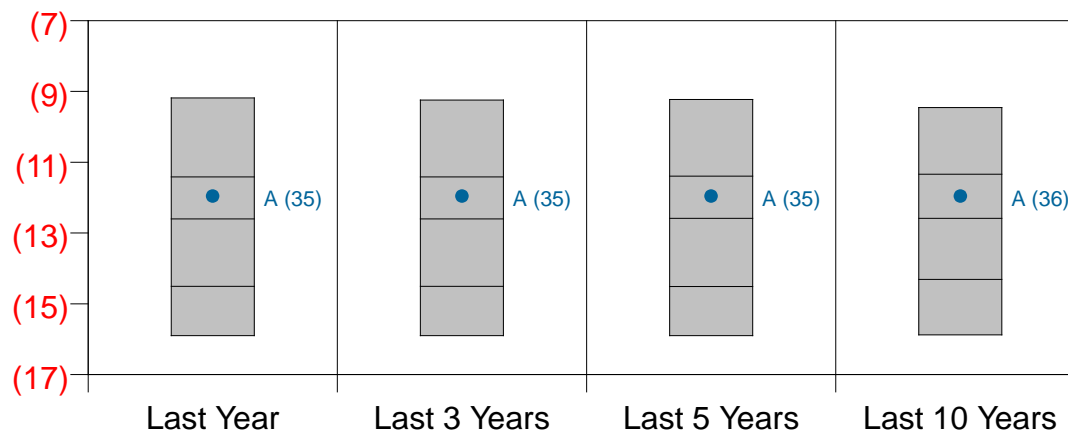


- “Sharpe ratio” is a risk-adjusted measure of excess return above the risk-free rate.
- ARMB’s risk-adjusted return (Sharpe ratio) was above the Public Funds median for the three-, five-, and 10-year periods.

Total Maximum Drawdown Rankings vs Public Funds (PERS)

Callan Public Fund Database

Maximum Drawdown
for Periods Ended June 30, 2020
Group: Callan Public Fund Sponsor Database

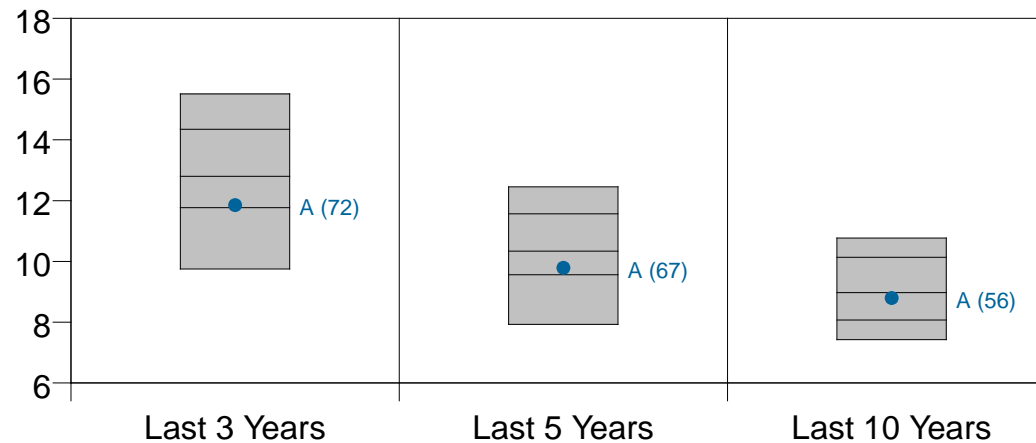


- “Maximum drawdown” is a measure of the largest loss from peak to trough in a given period.
- Lower rankings reflect larger drawdowns (i.e. bigger losses). ARMB’s drawdown rankings for all periods have reflected better than average drawdowns (i.e. lower losses) and have improved over time.
- The drawdown experienced in the first quarter of 2020 is the largest of the last 10 years.

Standard Deviation Ranking vs Public Funds (PERS)

Callan Public Fund Database

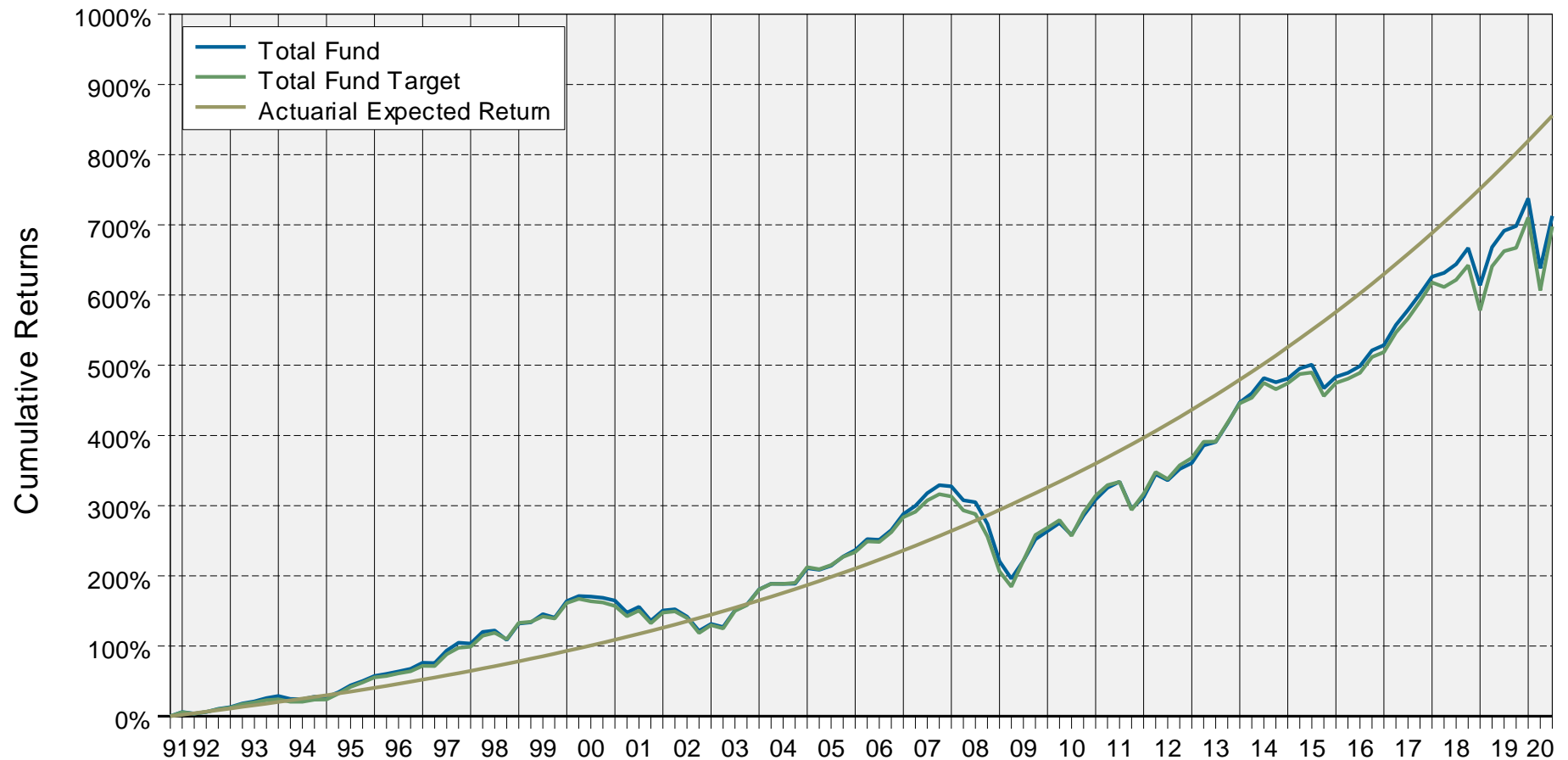
Standard Deviation
for Periods Ended June 30, 2020
Group: Callan Public Fund Sponsor Database



- “Standard deviation” measures variability of returns. It is one measurement of investment risk.
- Less standard deviation results in lower rankings. A lower ranking of standard deviation suggests lower variability.
- ARMB’s portfolio diversification has resulted in volatility that is lower than median compared to peers.

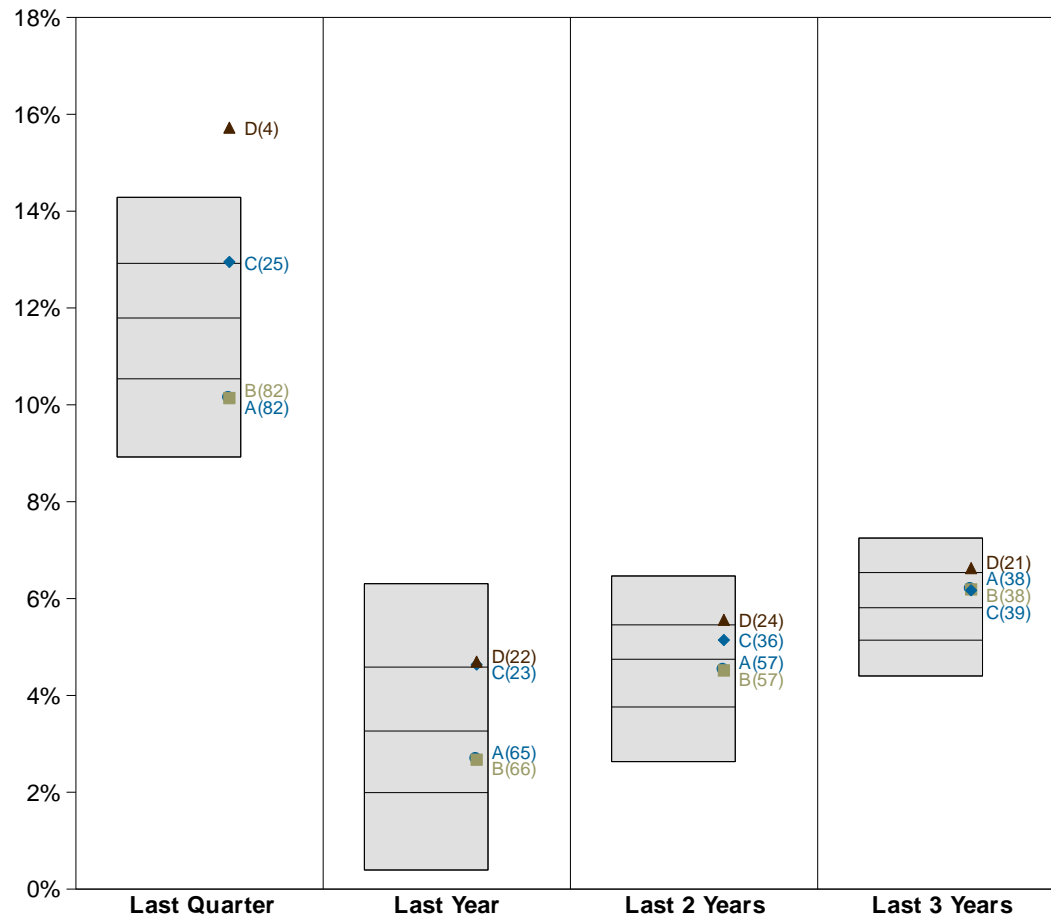
PERS Long-Term Total Fund Performance as of 6/30/20

Cumulative Returns Actual vs Target



- Each Fund has two targets: the asset allocation policy return and the actuarial return.
- Total Fund returns continue to closely track the strategic allocation target.
- Setbacks in 3Q15, 4Q18, and 1Q20 have hindered the Total Fund's progress toward closing the gap versus the actuarial return following the Global Financial Crisis of 2008/2009.

Annualized Total Fund Returns as of 6/30/20

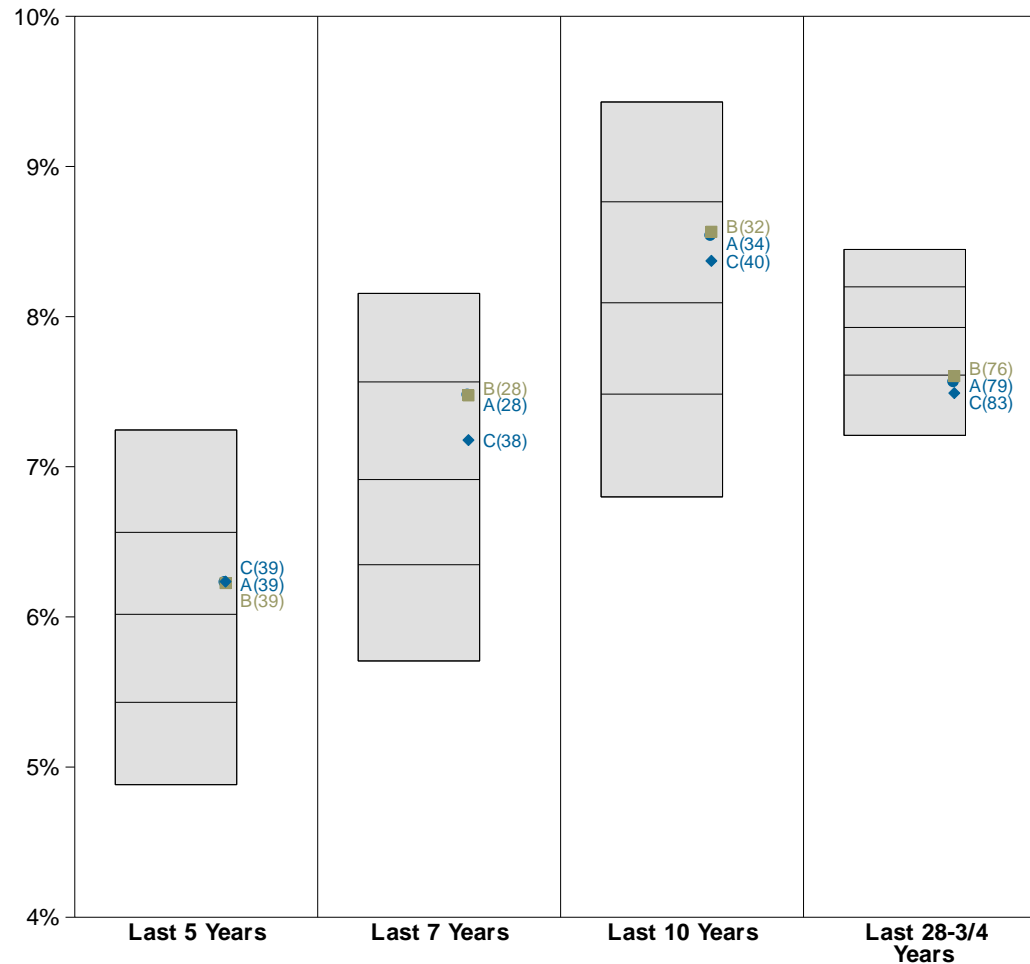


- PERS and TRS have underperformed their target for the last quarter, one-year, and two-year periods, but marginally outperformed over the three-year period.
- Current quarter underperformance was driven by the manager effect within private equity.

	Last Quarter	Last Year	Last 2 Years	Last 3 Years
10th Percentile	14.29	6.31	6.47	7.25
25th Percentile	12.92	4.59	5.46	6.54
Median	11.79	3.26	4.75	5.81
75th Percentile	10.54	1.99	3.76	5.14
90th Percentile	8.92	0.39	2.63	4.40
PERS Total Plan ● A	10.14	2.68	4.52	6.19
TRS Total Plan ■ B	10.14	2.67	4.52	6.19
Target Index ◆ C	12.95	4.64	5.14	6.17
Public Market Proxy ▲ D	15.72	4.70	5.56	6.63

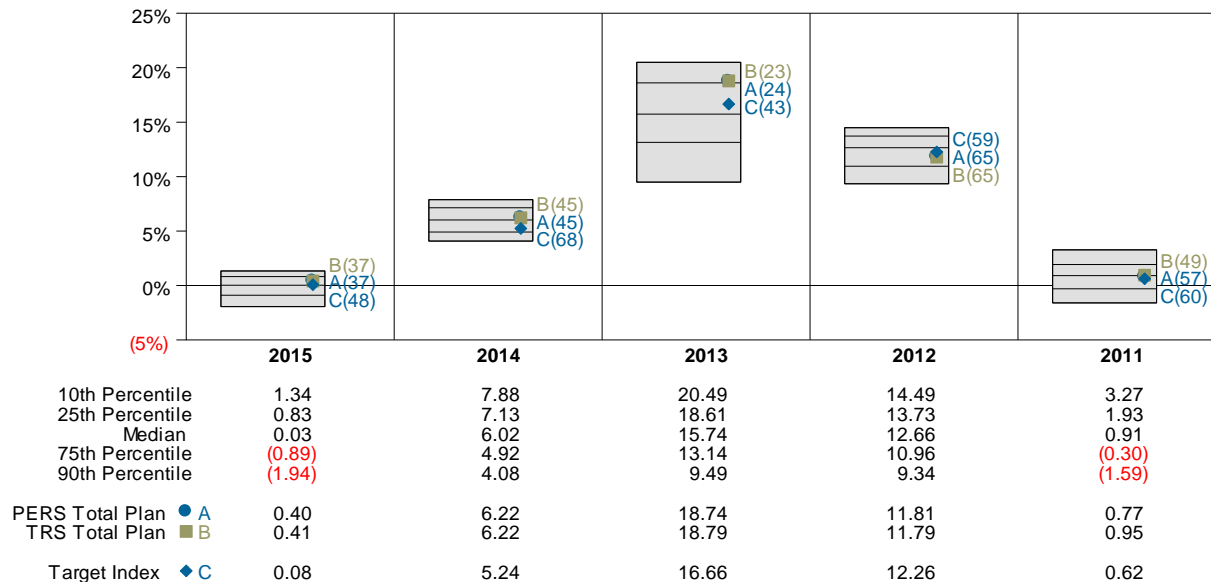
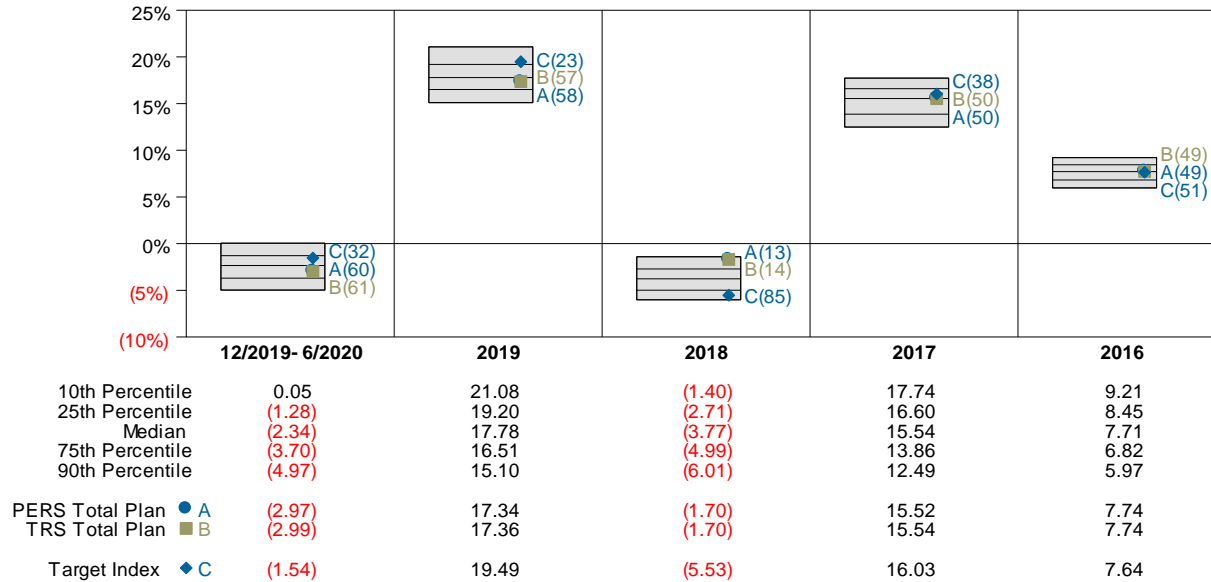
The Public Market Proxy consists of 45% Russell 3000 Index, 30% MSCI ACWI ex US IMI (Net), and 25% Bloomberg Aggregate Index.

Longer-Term Total Fund Returns as of 6/30/20



- Five-, seven-, and ten-year performance is at or above target and median.
- 28¾ year return for PERS beats the target by seven basis points.

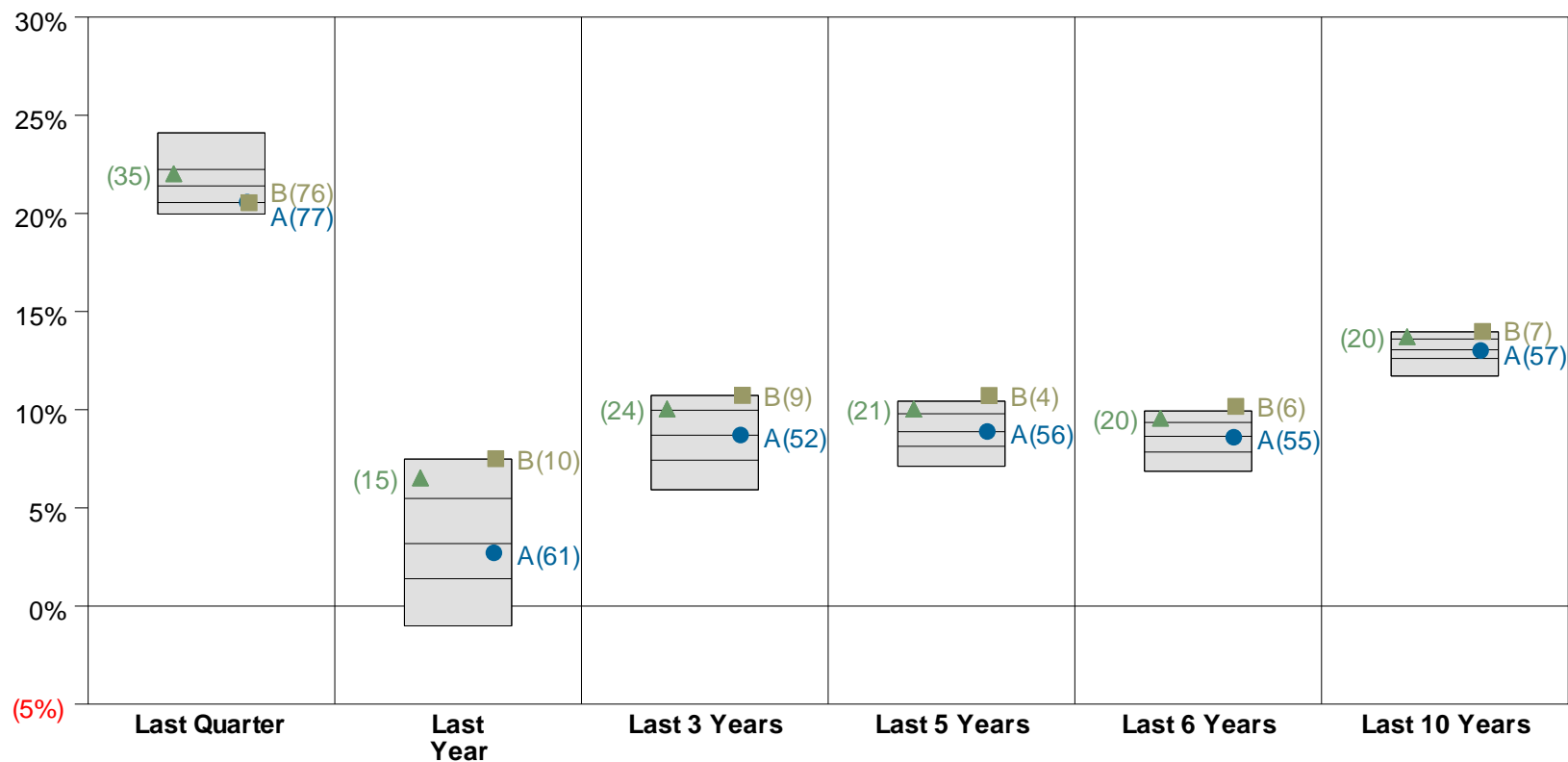
Calendar Period Total Fund Performance



- PERS ranks above median in five and TRS ranks above median in six of the 10 periods shown.
- Peer group range of returns during 2016, 2015, and 2014 were very tight.
- Wide range of peer group returns during calendar 2013 due to varying fixed-income allocations within the Public Fund universe.

Total Domestic Equity through 6/30/20

Performance vs Public Fund - Domestic Equity (Gross)



10th Percentile	24.10	7.49	10.72	10.44	9.94	13.96
25th Percentile	22.23	5.48	9.97	9.80	9.35	13.60
Median	21.40	3.18	8.70	8.88	8.65	13.06
75th Percentile	20.56	1.40	7.43	8.14	7.85	12.61
90th Percentile	19.97	(1.01)	5.93	7.12	6.87	11.71
Domestic Equity Pool	● A 20.48	2.62	8.63	8.80	8.50	12.93
Standard & Poor's 500	■ B 20.54	7.51	10.73	10.73	10.17	13.99
Russell 3000 Index	▲ 22.03	6.53	10.04	10.03	9.57	13.72

Domestic Equity Component Returns

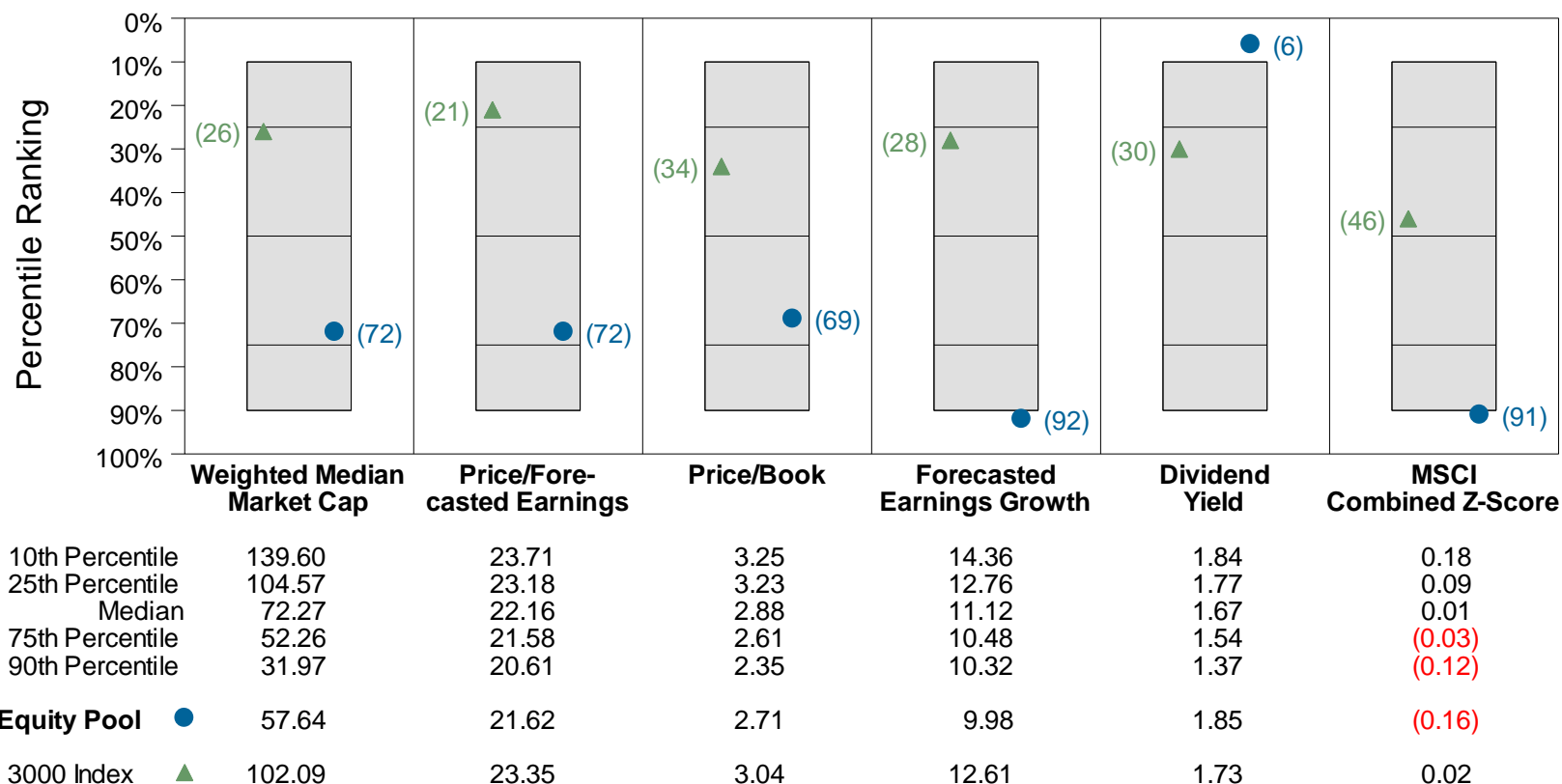
Returns for Periods Ended June 30, 2020

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Total Dom Equity Pool	20.48%	2.62%	8.63%	8.80%	12.93%
Russell 3000 Index	22.03%	6.53%	10.04%	10.03%	13.72%
Large Cap Managers	20.35%	4.11%	9.42%	9.49%	13.42%
Russell 1000 Index	21.82%	7.48%	10.64%	10.47%	13.97%
Small Cap Managers	21.86%	(11.76%)	1.82%	3.89%	10.61%
Russell 2000 Index	25.42%	(6.63%)	2.01%	4.29%	10.50%

- The large cap composite trailed its benchmark (the Russell 1000 Index) over all periods shown in the table.
- The small cap composite has also trailed its benchmark (the Russell 2000 Index) over most of the periods shown, the exception being outperformance over the trailing 10-year period.

Domestic Equity Portfolio Characteristics

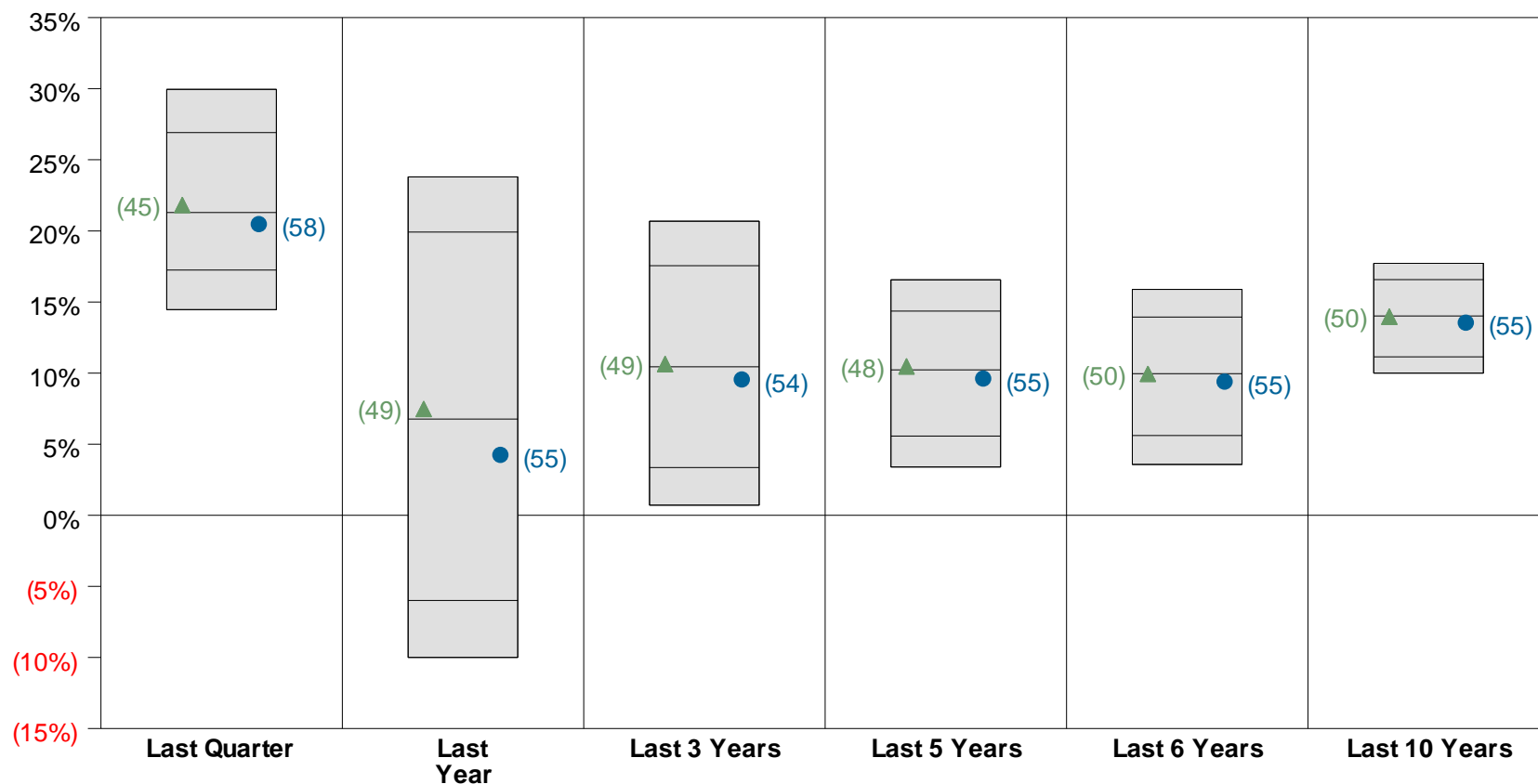
Portfolio Characteristics Percentile Rankings Rankings Against Public Fund - Domestic Equity as of June 30, 2020



- ARMB's overall domestic equity portfolio's market capitalization is smaller than 72% of public funds (first column).
- Overall, ARMB's domestic equity portfolio tilts decidedly "value" versus peers (last column on right).
 - "MSCI Combined Z-Score" measures Growth and Value characteristics of individual stocks within managers' portfolios.
 - A low Z-Score rank (i.e.– the dot appears towards the top of the floating bar) indicates a Growth bias.
 - A high Z-Score rank (i.e. – the dot appears towards the bottom of the floating bar) indicates a Value bias.

Large Cap Domestic Equity through 6/30/20

Performance vs Callan Large Capitalization (Gross)

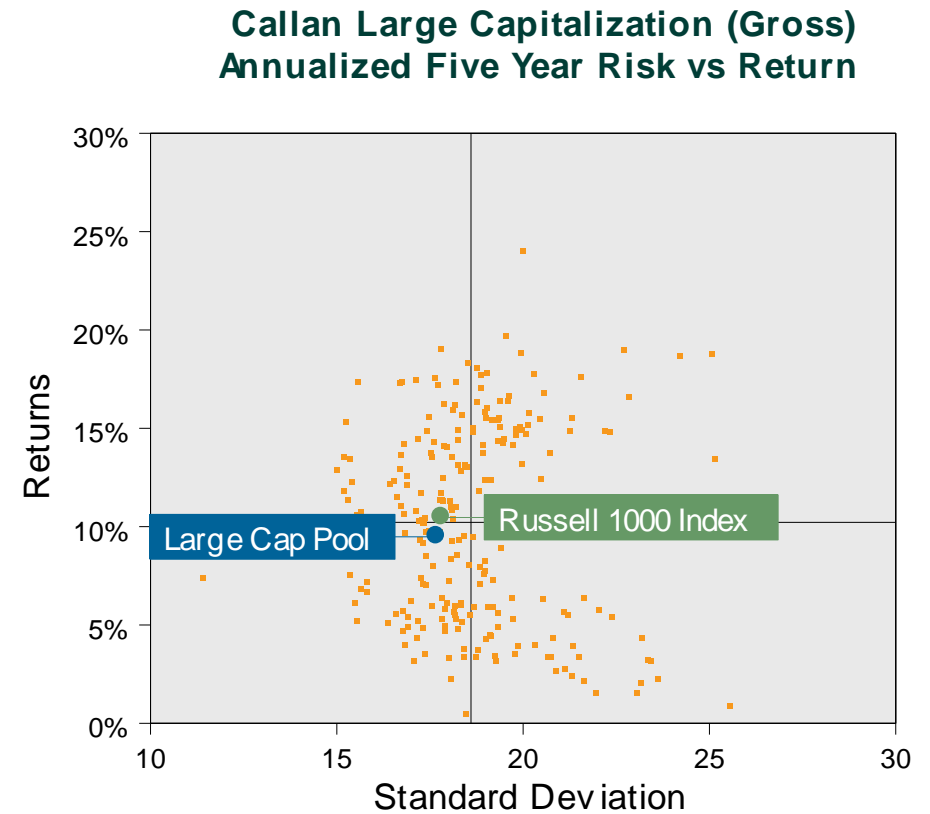
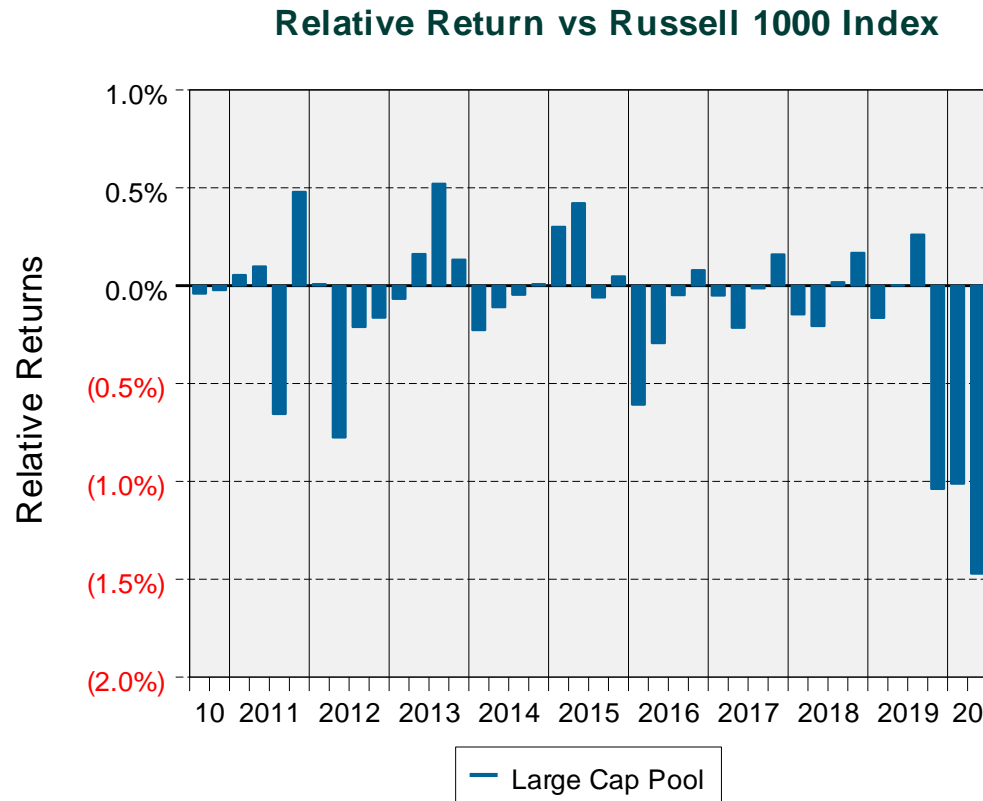


10th Percentile	29.95	23.79	20.68	16.55	15.88	17.71
25th Percentile	26.91	19.92	17.55	14.37	13.94	16.57
Median	21.30	6.76	10.44	10.22	9.96	14.02
75th Percentile	17.25	(5.99)	3.35	5.58	5.62	11.14
90th Percentile	14.46	(9.99)	0.71	3.40	3.57	9.99

Large Cap Pool ● 20.35 4.11 9.42 9.49 9.26 13.42

Russell 1000 Index ▲ 21.82 7.48 10.64 10.47 9.95 13.97

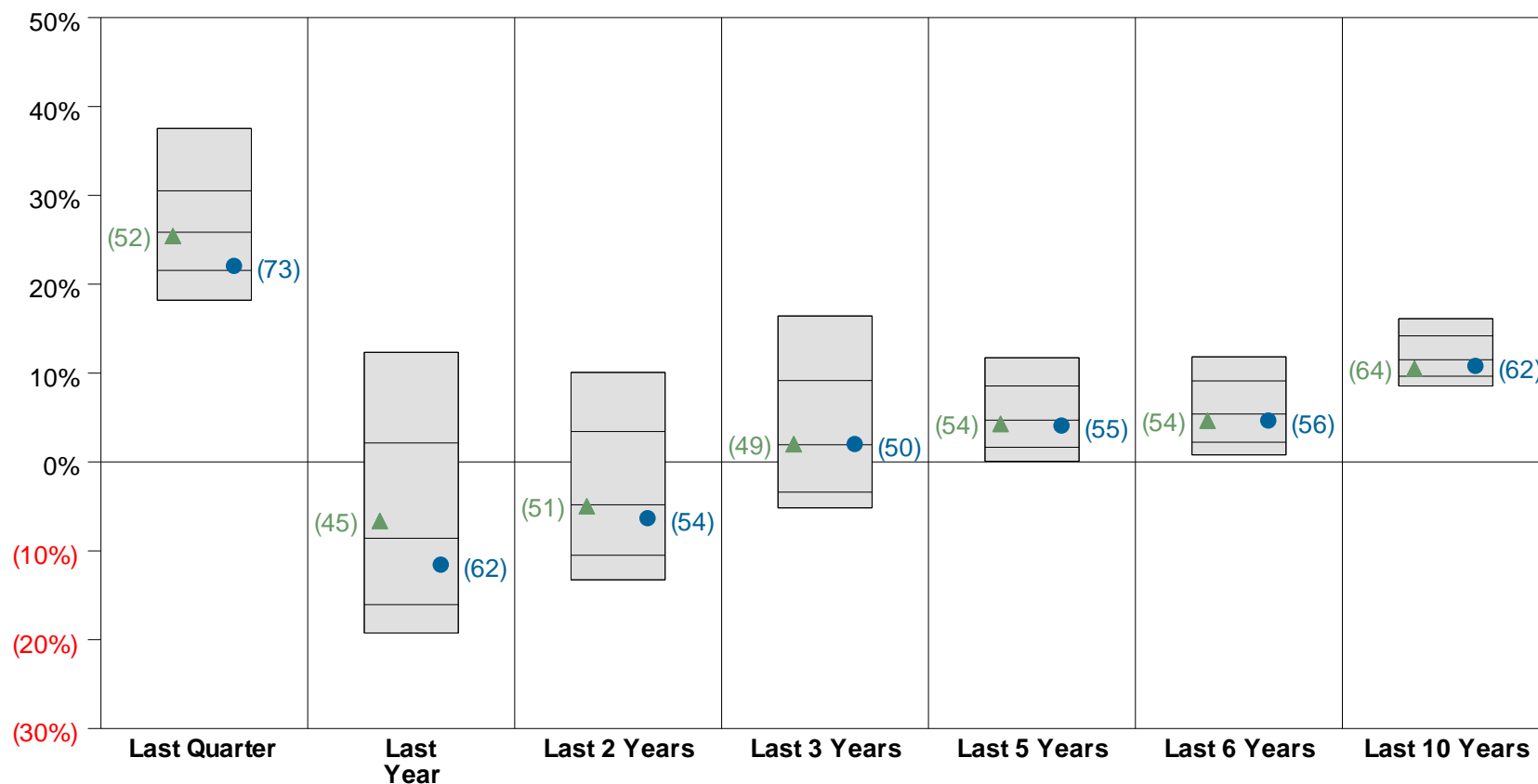
Large Cap Domestic Equity as of 6/30/20



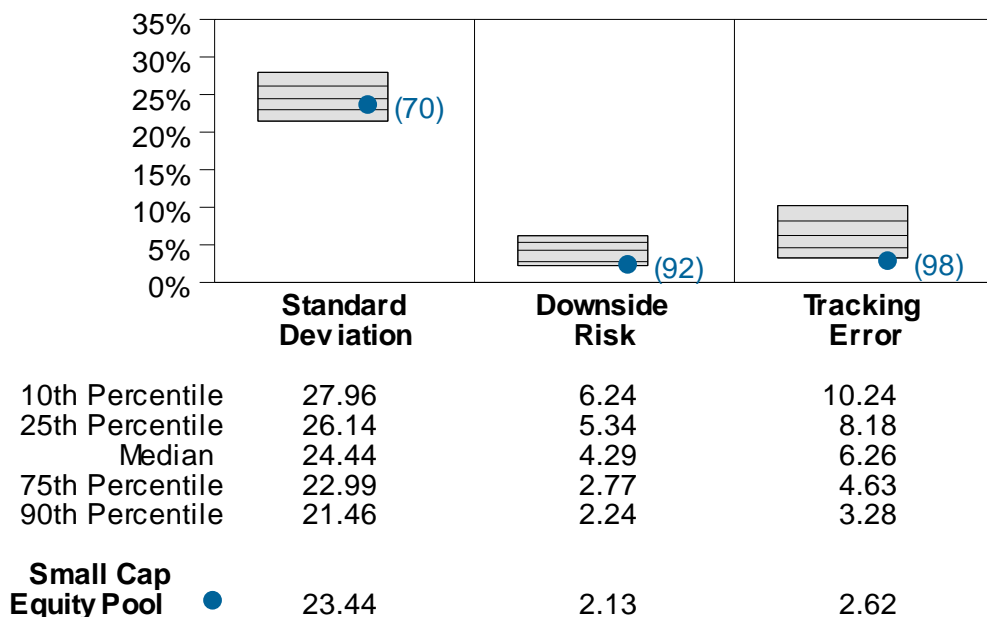
- Long-term performance exhibits market-like returns with similar risk.

Small Cap Domestic Equity through 6/30/20

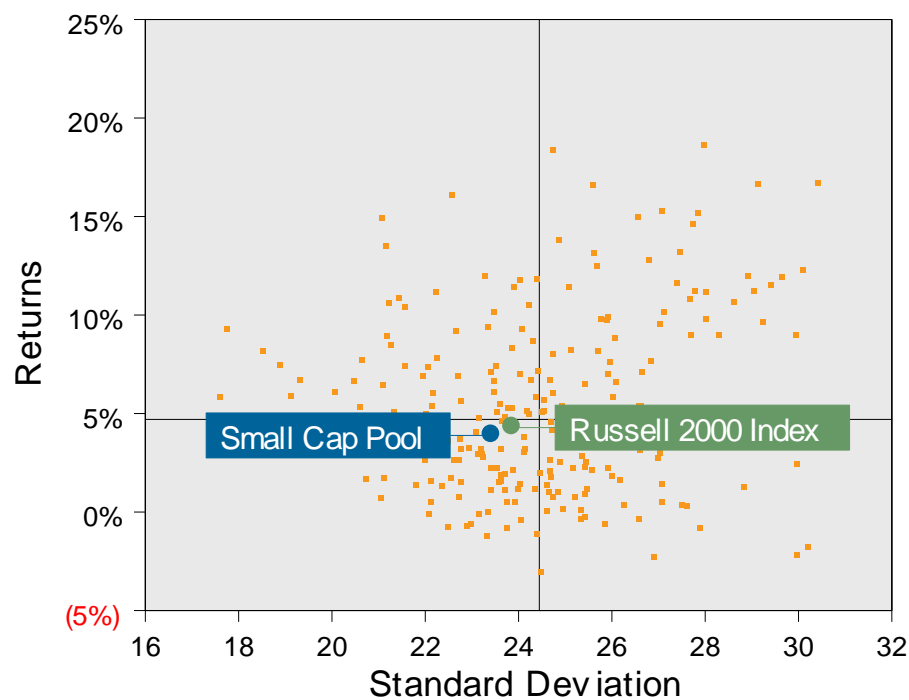
Performance vs Callan Small Capitalization (Gross)



Small Cap Domestic Equity through 6/30/20



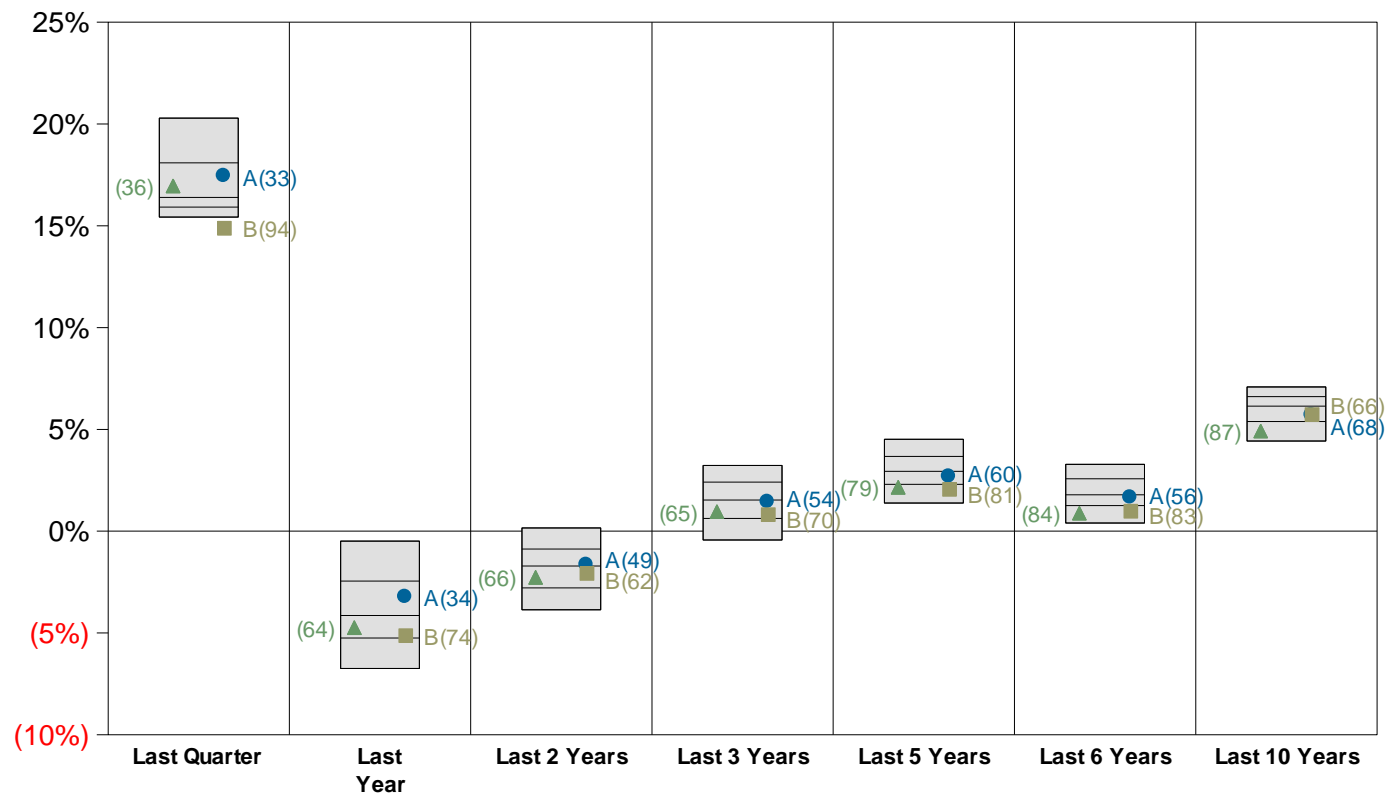
**Callan Small Capitalization (Gross)
Annualized Five Year Risk vs Return**



- The five-year risk statistics of standard deviation, downside risk, and tracking error compare favorably versus the peer group of small cap managers.

Global Equity ex-US through 6/30/20

Performance vs Public Fund - International Equity (Gross)

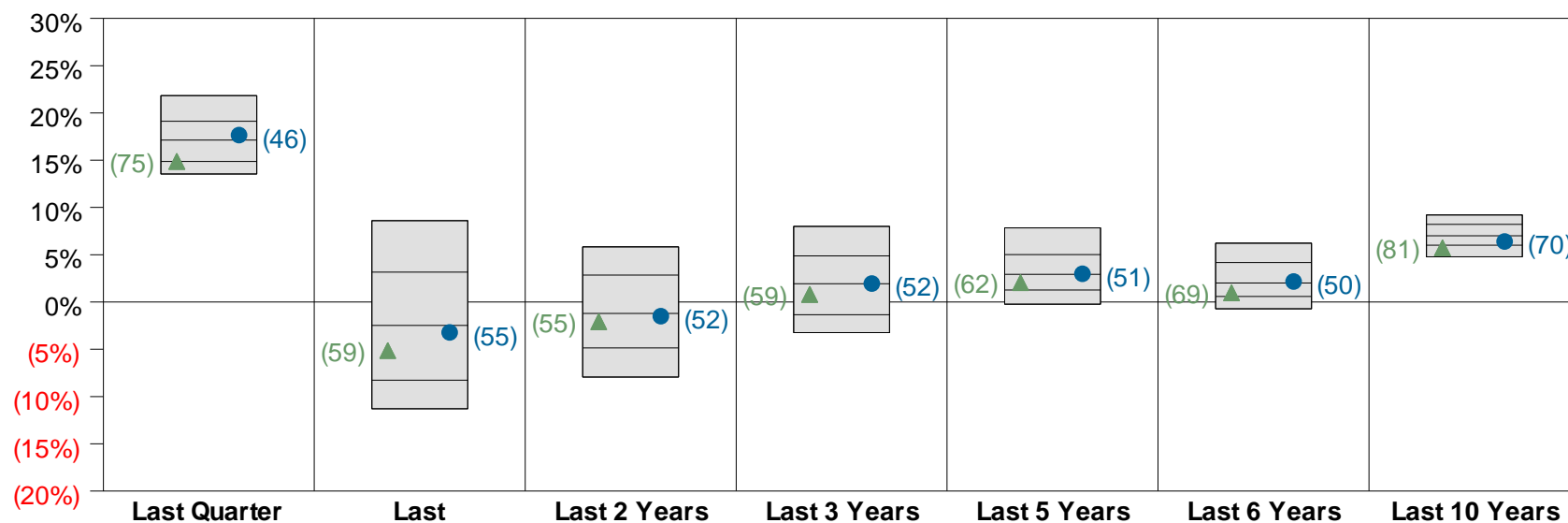


10th Percentile	20.29	(0.49)	0.16	3.23	4.51	3.28	7.08
25th Percentile	18.09	(2.45)	(0.88)	2.41	3.67	2.57	6.61
Median	16.40	(4.14)	(1.71)	1.53	2.94	1.79	6.14
75th Percentile	15.92	(5.25)	(2.79)	0.62	2.30	1.26	5.39
90th Percentile	15.42	(6.74)	(3.86)	(0.44)	1.38	0.40	4.42
Global Equity ex-US	● A 17.42	(3.25)	(1.68)	1.41	2.65	1.63	5.67
MSCI EAFE Index	■ B 14.88	(5.13)	(2.08)	0.81	2.05	0.98	5.73
Int'l Equity Target	▲ 16.96	(4.74)	(2.27)	0.96	2.16	0.88	4.92

The Int'l Equity Target currently consists of MSCI ACWI ex U.S. IMI.

International Equity ex Emerging Markets through 6/30/20

Performance vs Callan Non-US Equity (Gross)

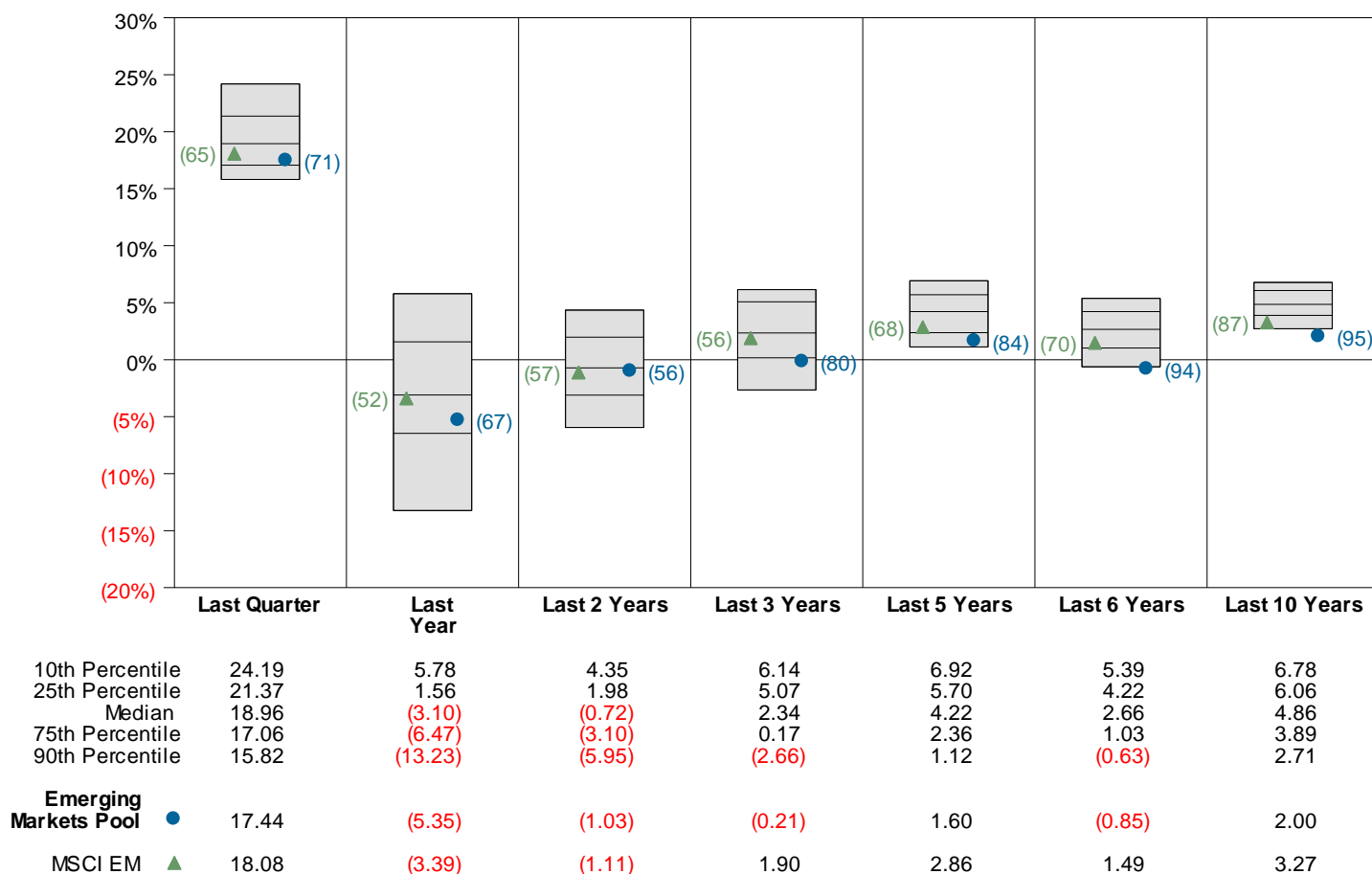


International Equity ex Emerging Markets through 6/30/20

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Int'l Equity Pool (ex Emerging Market)	17.46%	(3.42%)	1.76%	2.79%	6.22%
Arrowstreet ACWI ex -US	19.68%	1.57%	4.36%	4.47%	-
Baillie Gifford ACWI ex US	25.68%	12.84%	7.82%	7.73%	-
Brandes Investment	13.17%	(13.51%)	(3.94%)	(1.13%)	4.45%
Capital Guardian	21.65%	7.27%	8.51%	7.19%	8.83%
L&G Sci Beta Dev ex US	14.59%	-	-	-	-
SSgA World ex US IMI	16.16%	(5.06%)	-	-	-
MSCI EAFE Index	14.88%	(5.13%)	0.81%	2.05%	5.73%
MSCI ACWI ex-US IMI Index	16.96%	(4.74%)	0.96%	2.30%	5.11%

Emerging Markets through 6/30/20

Performance vs Callan Emerging Broad (Gross)



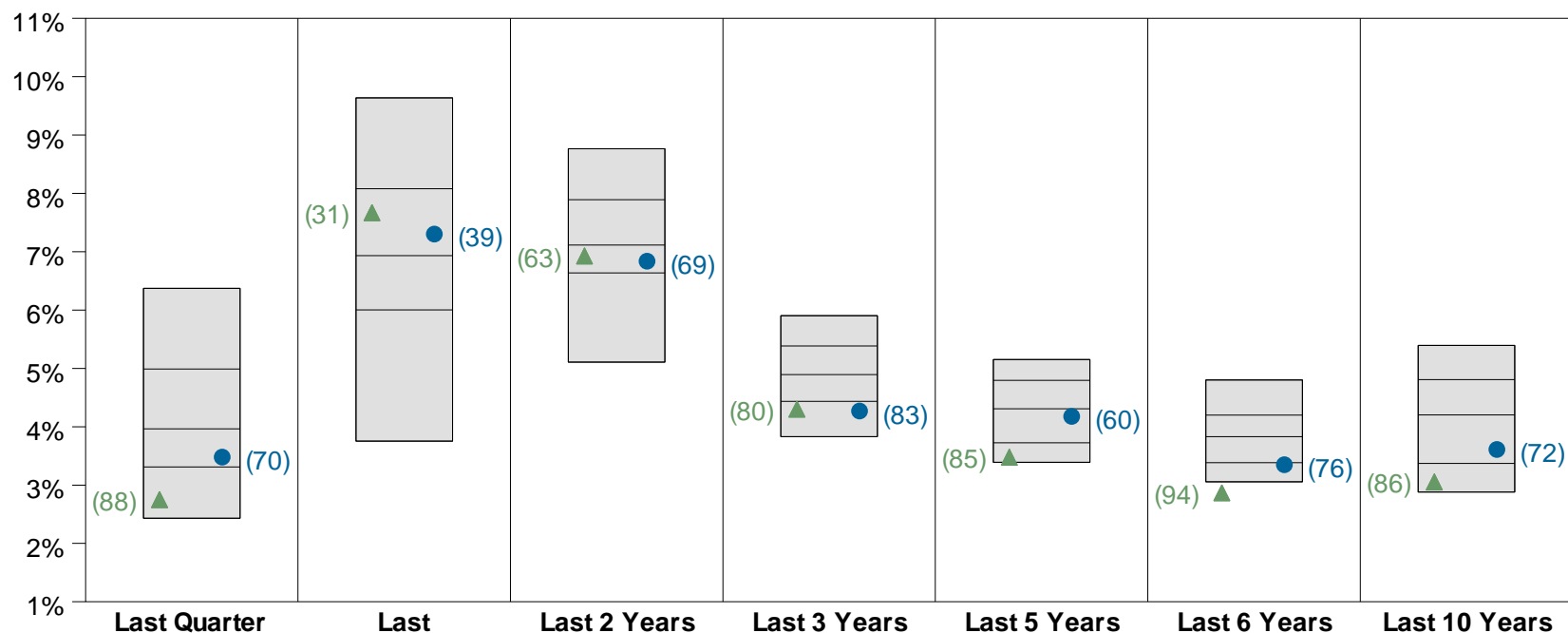
- After underperforming by 3.76% in 2Q17, 1.38% in 3Q17, 1.68% in 4Q17, 4.03% in 2Q18, 1.87% in 1Q19, and 1.41% in 4Q19, the Emerging Markets Pool lags the benchmark and ranks in the bottom quartile over periods of five years and longer.
- DRZ and Lazard were liquidated and L&G Scientific Beta was funded in 4Q19, leaving only passive and smart beta approaches within the emerging markets equity space.

Emerging Markets Pool through 6/30/20

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Emerging Markets Pool	17.44%	(5.35%)	(0.21%)	1.60%	2.00%
SSgA Emerging Markets	18.12%	(3.39%)	-	-	-
L&G SciBeta EM	15.35%	-	-	-	-
MSCI EM	18.08%	(3.39%)	1.90%	2.86%	3.27%

Total Fixed Income as of 6/30/20

Performance vs Public Fund - Domestic Fixed (Gross)



10th Percentile	6.37	9.64	8.77	5.90	5.15	4.80	5.40
25th Percentile	4.99	8.08	7.89	5.38	4.80	4.20	4.81
Median	3.96	6.93	7.11	4.89	4.31	3.83	4.20
75th Percentile	3.31	6.00	6.64	4.43	3.73	3.38	3.37
90th Percentile	2.43	3.75	5.11	3.83	3.39	3.06	2.88

**Total Fixed
Income Pool**



3.45 7.27 6.81 4.24 4.15 3.32 3.58

Fixed Income Target



2.75 7.67 6.93 4.30 3.48 2.87 3.05

- The transition from intermediate Treasury to Aggregate mandates was completed during the fourth quarter of 2019.

Includes In-House and External Portfolios

Total Fixed Income through 6/30/20

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Fixed Income	3.45%	7.27%	4.24%	4.15%	3.58%
Fixed Income Target	2.75%	7.67%	4.30%	3.48%	3.05%
Blmbg Treasury Intmdt	0.54%	7.07%	4.11%	2.98%	2.56%
ARMB US Aggregate	3.54%	-	-	-	-
Opportunistic Fixed Income	6.86%	(1.07%)	3.75%	4.59%	6.73%
FIAM Tactical Bond	8.08%	5.75%	5.52%	5.45%	-
Blmbg Aggregate	2.90%	8.74%	5.32%	4.30%	3.82%
FIAM REHI	4.65%	(12.56%)	(0.09%)	-	-
Blmbg:Universal CMBS xAaa	2.09%	(3.69%)	2.83%	3.24%	5.89%
Alternative Fixed Income	0.88%	-	-	-	-
Crestline (Blue Glacier)	0.66%	2.97%	4.66%	5.97%	6.37%
Prisma Capital (Polar Bear)	(10.42%)	(5.58%)	0.45%	(0.69%)	2.78%
Crestline Specialty Lending Fund	(7.65%)	1.73%	10.15%	7.18%	-
Crestline Specialty Lndg Fd II	(13.02%)	(4.26%)	-	-	-
HFRI Fund of Funds Index	7.90%	0.49%	2.26%	1.50%	2.79%
T-Bills + 5%	1.25%	6.63%	6.77%	6.19%	5.64%

Opportunistic through 6/30/20

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Opportunistic (T)	9.17%	1.10%	4.49%	-	-
Alternative Equity Strategies	27.66%	12.51%	9.89%	8.86%	9.60%
McKinley Healthcare Transformation	27.66%	11.26%	-	-	-
Russell 1000 Index	21.82%	7.48%	10.64%	10.47%	13.97%
Other Opportunities	(6.02%)	(3.10%)	(0.21%)	1.92%	-
Project Pearl	(5.25%)	(8.71%)	-	-	-
Schroders Insurance Linked	(6.16%)	(2.37%)	(3.73%)	-	-
T-Bills + 6%	1.49%	7.63%	7.77%	7.19%	6.64%
Tactical Allocation Strategies	12.82%	1.47%	-	-	-
PineBridge	12.42%	(1.99%)	-	-	-
Pine Bridge Benchmark	10.25%	(0.93%)	2.47%	3.05%	4.16%
Fidelity Signals	13.20%	4.95%	-	-	-
Fidelity Signals Benchmark	12.88%	4.76%	5.83%	5.68%	7.24%
Alternative Beta					
Man Group Alternative Risk Premia	(1.87%)	(5.49%)	-	-	-
T-Bills + 5%	1.25%	6.63%	6.77%	6.19%	5.64%

Real Assets through 6/30/20

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Real Assets	1.00%	1.81%	5.15%	5.24%	7.80%
Real Assets Target (1)	9.08%	(3.57%)	2.55%	4.40%	7.29%
Real Estate Pool	1.61%	1.89%	5.12%	6.97%	9.63%
Real Estate Target (2)	0.43%	2.16%	5.45%	6.88%	9.89%
Private Real Estate	(0.66%)	4.41%	5.85%	7.24%	9.76%
NCREIF NFI-ODCE Val Wt Nt	(1.75%)	1.33%	4.72%	6.35%	9.78%
NCREIF Total Index	(0.99%)	2.69%	5.44%	6.77%	9.70%
ARMB REIT	13.19%	(6.45%)	3.44%	6.47%	10.41%
NAREIT Equity Index	13.25%	(6.47%)	3.51%	6.56%	10.39%
 Total Farmland	 0.78%	 2.73%	 3.19%	 3.88%	 7.28%
UBS Farmland	0.78%	3.02%	3.52%	4.30%	8.16%
Hancock Agricultural	0.78%	2.13%	2.50%	2.98%	5.74%
ARMB Farmland Target (3)	0.92%	4.17%	5.11%	5.41%	8.96%
 Total Timber	 0.03%	 (2.15%)	 2.21%	 1.21%	 4.13%
Timberland Investment Resources	0.23%	(1.37%)	2.40%	1.50%	3.65%
Hancock Timber	(0.54%)	(4.24%)	1.75%	0.40%	4.77%
NCREIF Timberland Index	0.08%	0.34%	2.28%	2.71%	4.39%
 Total Energy Funds	 (3.50%)	 (18.22%)	 (4.53%)	 (5.59%)	 (1.68%)
CPI + 5%	1.11%	5.53%	6.68%	6.44%	6.62%
 Total Infrastructure	 1.75%	 5.35%	 10.71%	 9.95%	 -
JPM Infrastructure	3.58%	5.38%	7.97%	6.79%	-
IFM Infrastructure	1.31%	5.36%	12.85%	12.19%	-
CPI + 4%	0.86%	4.52%	5.68%	5.44%	5.62%
Global Infrastructure Idx	13.87%	(14.76%)	(0.89%)	2.62%	6.92%

(1) As of 10/01/2019, Real Assets Target is 37.5% NFI-ODCE Value Weight Net Index, 10% FTSE NAREIT All Equity Index, 25% NCREIF Farmland Index, 10% NCREIF Timberland Index, 17.5% CPI+4.

(2) ARMB Custom Real Estate Target is 90% NCREIF Property Index and 10% FTSE NAREIT All Equity REIT Index.

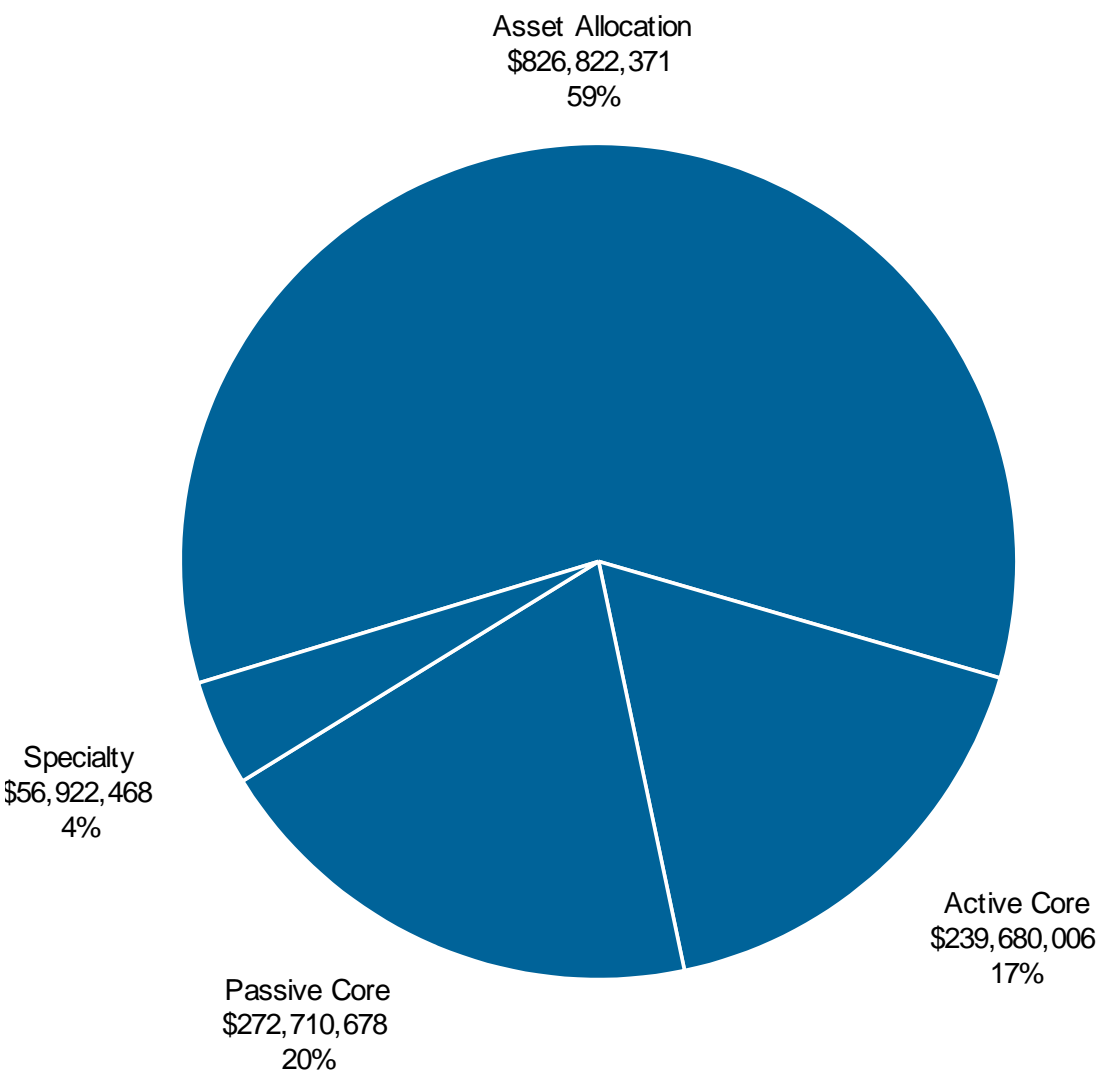
(3) ARMB Custom Farmland Target is leased-only properties in the NCREIF Farmland Index reweighted to reflect 90% row crops and 10% permanent crops until 1/1/08 and 80% row crops and 20% permanent crops thereafter .

Farmland and Timber data supplied by the manager and may vary from State Street returns due to timing variations.

Participant-Directed Plans

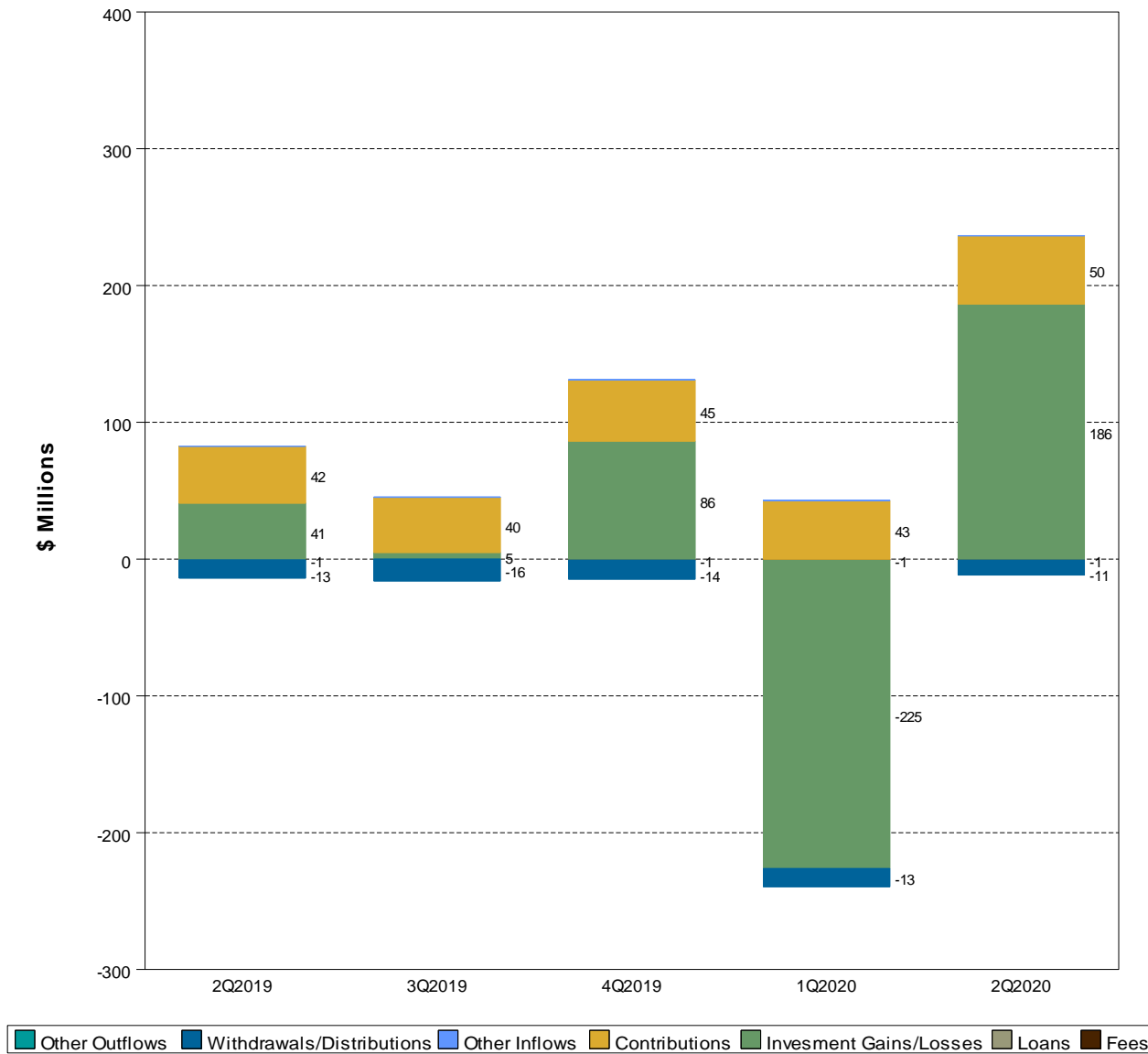
PERS DC Plan

June 30, 2020



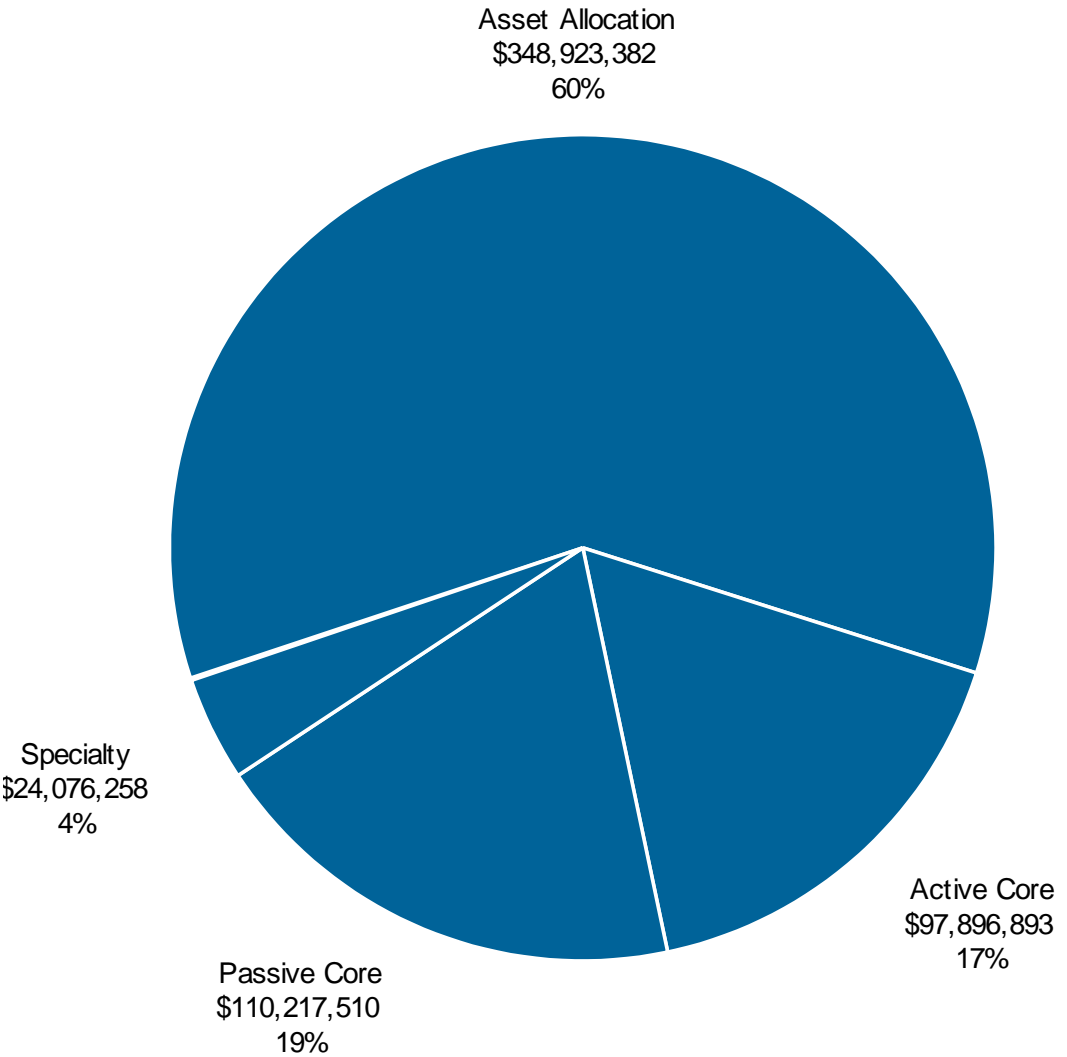
PERS DC Plan: Asset Changes

June 30, 2020



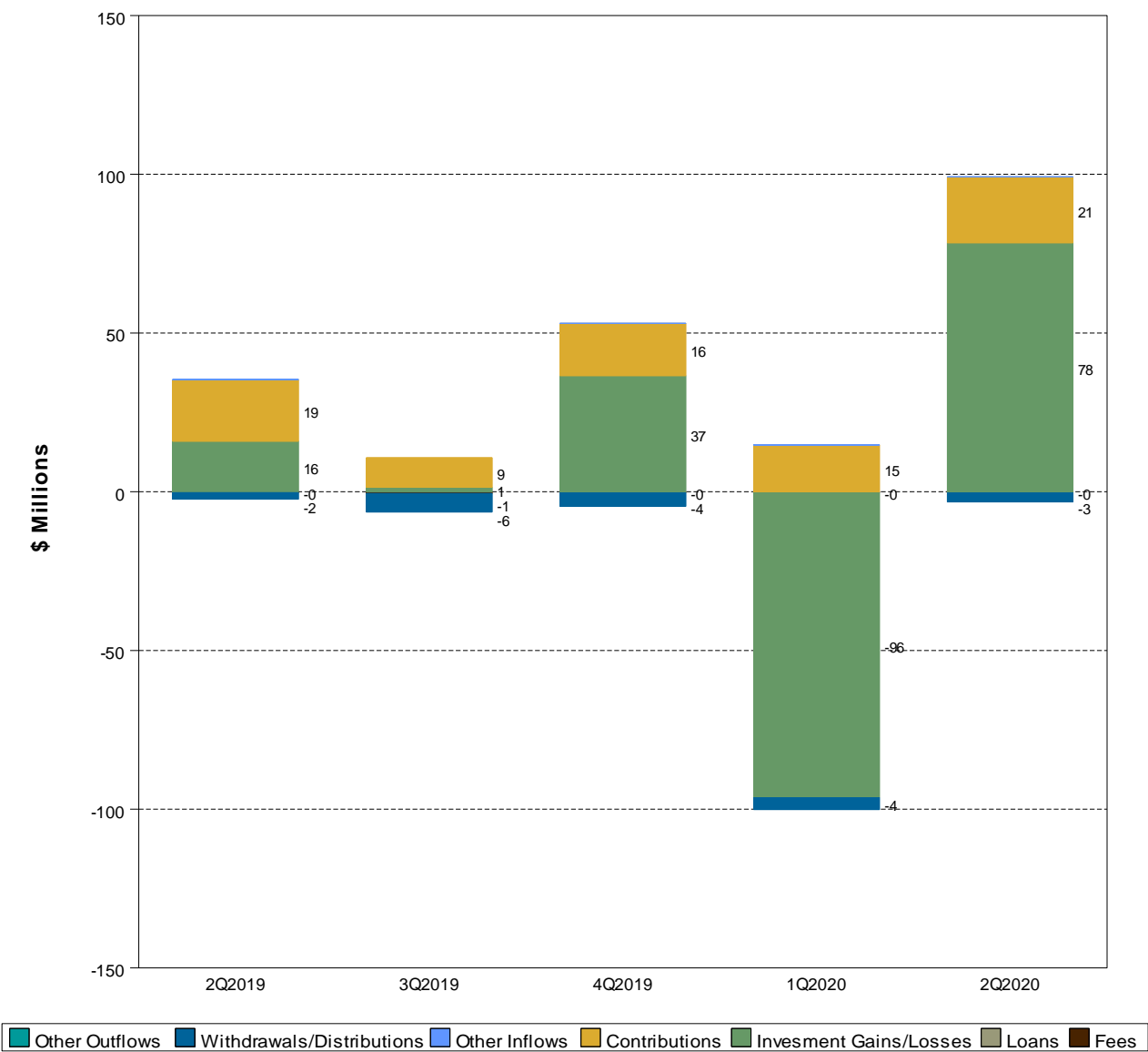
TRS DC Plan

June 30, 2020



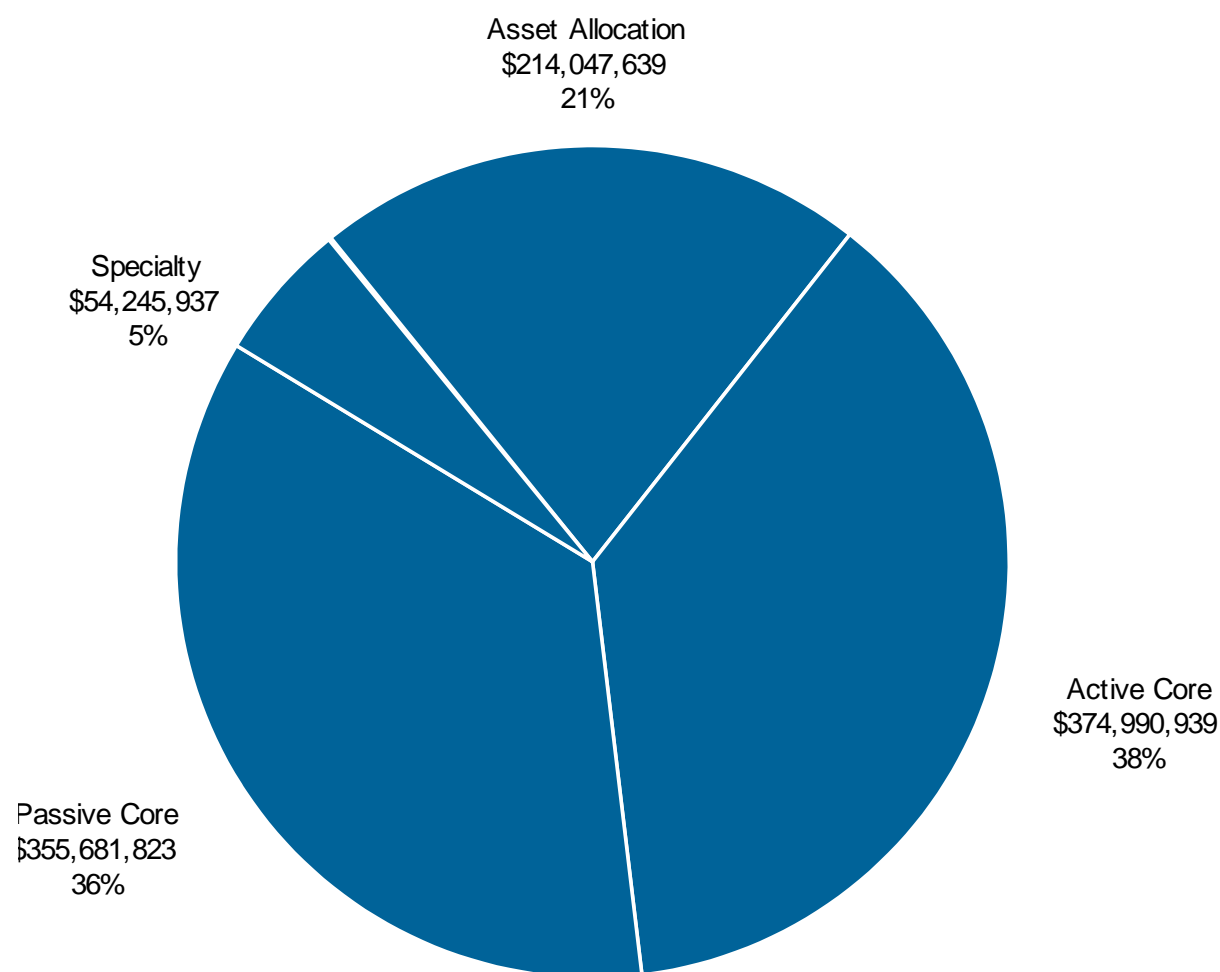
TRS DC Plan: Asset Changes

June 30, 2020



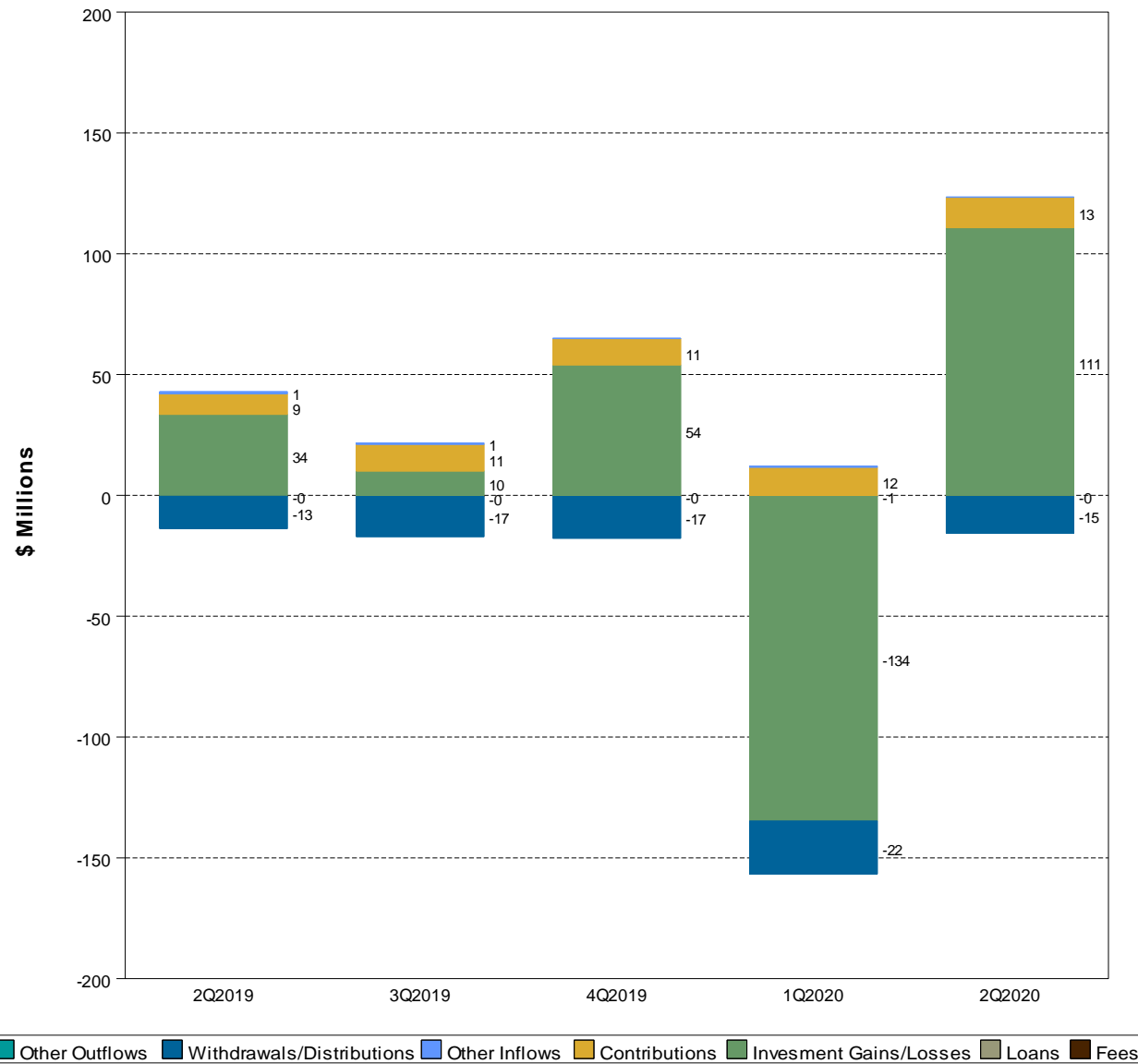
Deferred Comp Plan

June 30, 2020



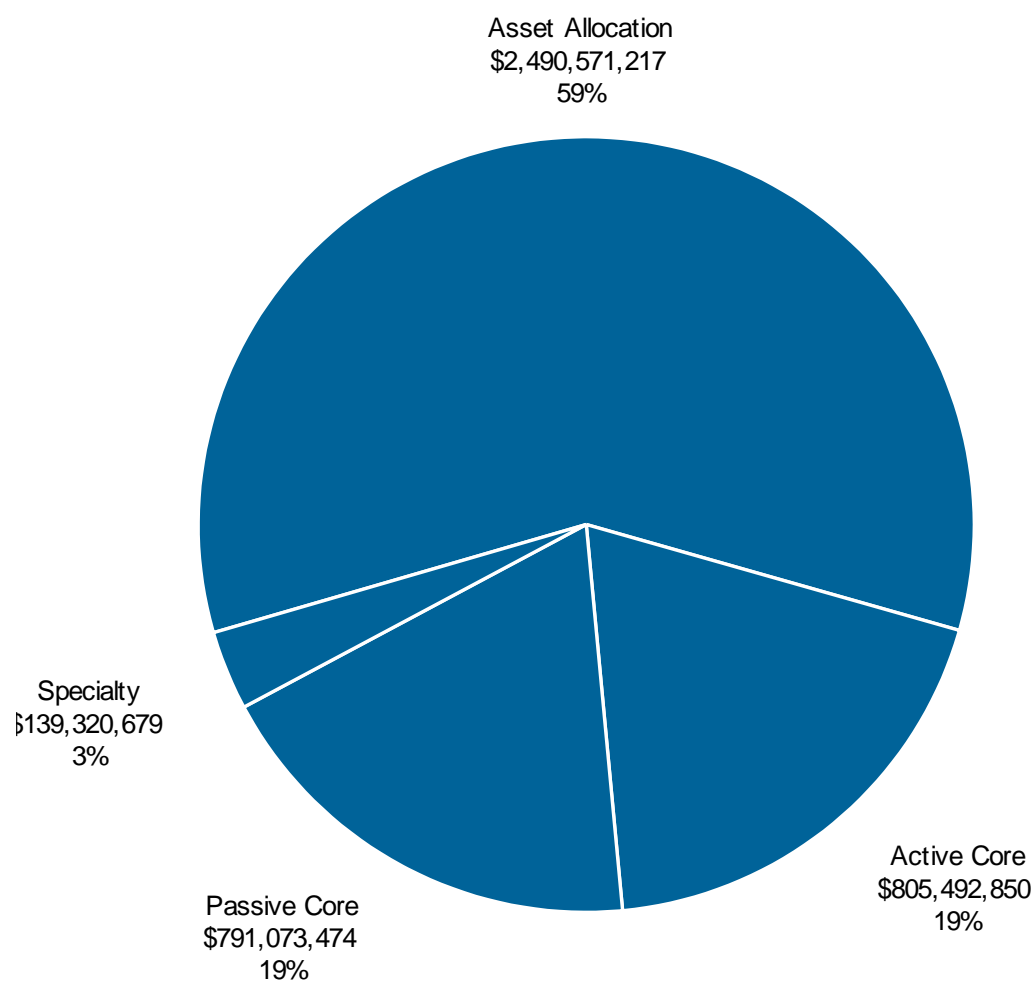
Deferred Comp Plan: Asset Changes

June 30, 2020



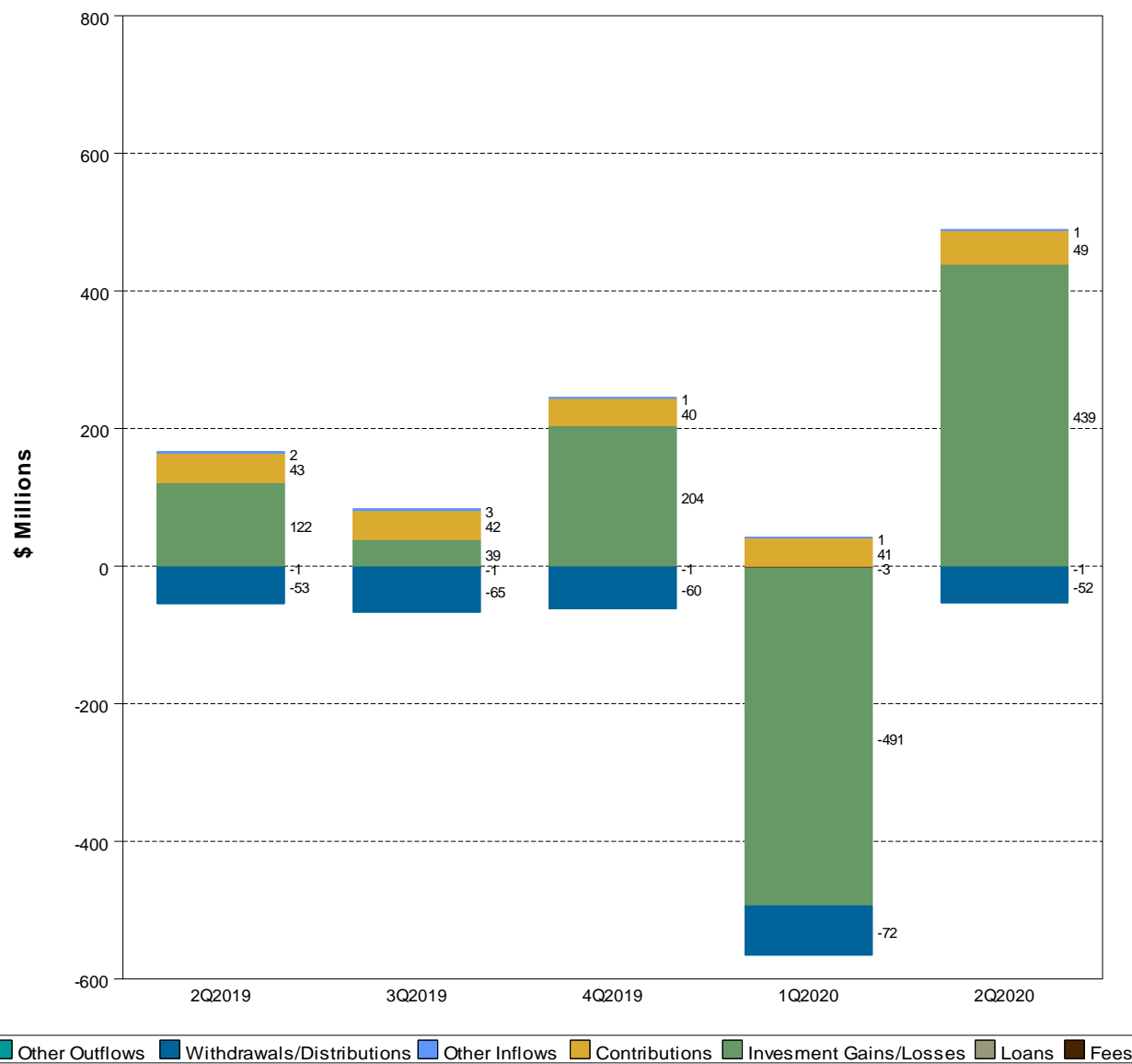
SBS Fund

June 30, 2020



SBS Fund: Asset Changes

June 30, 2020



Individual Account Option Performance: 6/30/20

Balanced & Target Date Funds

Investment Manager	Last Quarter Return	Last Year Return	3 Year Return	5 Year Return	7 Year Return	5 Year Risk	5 Year Risk Quadrant	5 Year Excess Rtn Ratio	3 Year Tracking Error	5 Year Sharpe Ratio
Asset Allocation										
Alaska Balanced Trust	8.5 58	6.2 15	5.7 13	5.2 12	5.6 14	6.3 74		-0.0 12	0.3 100	0.6 11
CAI MA Tgt Alloc Cons MFs										
Passive Target	8.4 65	5.8 17	5.7 12	5.2 12	5.6 14	6.4 67				0.6 12
Alaska Long-Term Balanced	12.9 44	5.2 27	6.3 25	6.2 23	7.1 25	10.6 62		-0.5 51	0.4 100	0.5 25
CAI MA Tgt Alloc Mod MFs										
Passive Target	12.9 44	5.1 28	6.5 20	6.3 21	7.2 23	10.8 59				0.5 24
Target 2010 Trust	8.9 52	5.0 53	5.5 52	5.2 69	5.9 46	7.3 53		-0.2 76	0.3 100	0.5 45
CAI Tgt Date 2010										
Custom Index	9.0 50	4.8 58	5.6 38	5.2 60	6.0 43	7.5 50				0.5 50
Target 2015 Trust	10.1 44	5.1 37	5.9 25	5.7 28	6.6 18	8.5 42		0.1 22	0.3 100	0.5 30
CAI Tgt Date 2015										
Custom Index	10.2 40	4.9 51	6.0 20	5.7 28	6.6 18	8.7 41				0.5 37
Target 2020 Trust	11.8 22	4.9 34	6.3 11	6.2 10	7.3 9	10.1 21		0.1 7	0.4 100	0.5 35
CAI Tgt Date 2020										
Custom Index	12.0 18	4.7 39	6.4 9	6.2 10	7.3 9	10.4 19				0.5 42
Target 2025 Trust	13.5 23	4.8 34	6.6 12	6.6 8	7.8 9	11.7 17		0.0 7	0.4 100	0.5 24
CAI Tgt Date 2025										
Custom Index	13.7 18	4.6 41	6.7 11	6.6 8	7.9 9	11.9 14				0.5 30
Target 2030 Trust	15.1 24	4.5 32	6.8 16	6.9 10	8.3 9	13.1 23		-0.1 17	0.4 100	0.4 19
CAI Tgt Date 2030										
Custom Index	15.2 19	4.3 35	7.0 13	7.0 10	8.3 9	13.3 21				0.4 22
Target 2035 Trust	16.4 40	4.3 19	7.1 15	7.2 10	8.7 9	14.2 43		-0.1 14	0.4 100	0.4 10
CAI Tgt Date 2035										
Custom Index	16.6 37	4.3 20	7.2 10	7.3 10	8.7 8	14.5 33				0.4 13
Target 2040 Trust	17.4 40	4.1 16	7.2 11	7.4 8	8.9 9	15.2 47		-0.1 11	0.4 100	0.4 7
CAI Tgt Date 2040										
Custom Index	17.6 37	4.0 17	7.3 6	7.5 7	8.9 8	15.4 41				0.4 7
Target 2045 Trust	18.2 51	3.8 17	7.1 11	7.5 9	8.9 11	15.8 62		-0.2 12	0.4 98	0.4 6
CAI Tgt Date 2045										
Custom Index	18.4 44	3.8 17	7.3 6	7.5 8	9.0 10	16.1 54				0.4 7

Returns:
■ above median
■ third quartile
■ fourth quartile

Risk:
■ below median
■ second quartile
■ first quartile

Risk Quadrant:


Excess Return Ratio:
■ above median
■ third quartile
■ fourth quartile

Tracking Error:
■ below median
■ second quartile
■ first quartile

Sharpe Ratio:
■ above median
■ third quartile
■ fourth quartile

Individual Account Option Performance: 6/30/20

Balanced & Target Date Funds

Investment Manager	Last Quarter Return	Last Year Return	3 Year Return	5 Year Return	7 Year Return	5 Year Risk	5 Year Risk Quadrant	5 Year Excess Rtn Ratio	3 Year Tracking Error	5 Year Sharpe Ratio
Target 2050 Trust CAI Tgt Date 2050 Custom Index	18.2 57	3.7 17	7.1 10	7.4 8	8.9 11	15.8 80		-0.2 12	0.4 100	0.4 5
	18.4 50	3.8 17	7.3 5	7.5 7	9.0 10	16.1 66				0.4 5
Target 2055 Trust CAI Tgt Date 2055 Custom Index	18.2 69	3.8 16	7.1 11	7.4 10	8.9 14	15.8 84		-0.2 14	0.4 99	0.4 6
	18.4 61	3.8 16	7.3 6	7.5 9	9.0 12	16.1 71				0.4 6
Target 2060 Trust CAI Tgt Date 2060 Custom Index	18.2 66	3.6 20	7.0 14						0.4 99	
	18.4 62	3.8 16	7.3 7							
Target 2065 Trust CAI Tgt Date 2065 Custom Index	18.2 79									
	18.4 76									

Returns:
■ above median
■ third quartile
■ fourth quartile

Risk:
■ below median
■ second quartile
■ first quartile

Risk Quadrant:


Excess Return Ratio:
■ above median
■ third quartile
■ fourth quartile

Tracking Error:
■ below median
■ second quartile
■ first quartile

Sharpe Ratio:
■ above median
■ third quartile
■ fourth quartile

Other Options: 6/30/20

Passive Strategies

Investment Manager	Last Quarter Return	Last Year Return	3 Year Return	5 Year Return	7 Year Return	5 Year Risk	5 Year Risk Quadrant	5 Year Excess Rtn Ratio	3 Year Tracking Error	5 Year Sharpe Ratio
Index Funds										
SSgA S&P 500 Index Fund (i) Callan S&P 500 Index MFs S&P 500 Index	20.5 ³⁴	7.5 ¹⁹	10.7 ¹⁴	10.7 ¹⁰	12.1 ¹⁵	17.3 ⁴²		-0.5 ¹⁰	0.0 ⁸⁷	0.6 ⁸
SSgA Russell 3000 Index Fund (i) CAI Mut Fd: Large Cap Broad Style (Net) Russell 3000 Index	20.5 ²⁰	7.5 ¹⁰	10.7 ⁸	10.7 ⁸	12.1 ⁸	17.3 ³⁷		-0.0 ⁴⁶	0.0 ¹⁰⁰	0.6 ⁸
SSgA World Equity ex-US Index Fund (i) CAI MF: Non-U.S. Equity Style MSCI ACWI x U.S. Index (Net)	22.0 ⁴⁵	6.5 ⁵⁰	10.0 ⁵⁰	10.0 ⁴⁶	11.7 ⁴⁹	18.2 ⁵⁸		0.2 ³⁴	0.9 ¹⁰⁰	0.5 ⁴⁹
SSgA World Equity ex-US Index Fund (i) CAI MF: Non-U.S. Equity Style MSCI ACWI x U.S. Index (Net)	17.5 ⁵⁵	-4.4 ⁵⁸	1.4 ⁴⁹	2.5 ⁴⁸	3.9 ⁵⁴	18.1 ⁶⁷		0.2 ³⁴	0.9 ¹⁰⁰	0.1 ⁴⁸
BlackRock Passive US Bd Index Fund (i) Callan Core Bond MFs Blmbg Aggregate	16.1 ⁷⁰	-4.8 ⁵⁹	1.1 ⁵⁰	2.3 ⁵²	3.7 ⁶⁰	17.7 ⁷⁸				0.1 ⁵²
	2.9 ⁹³	8.7 ⁴³								
	2.9 ⁹³	8.7 ⁴²	5.3 ⁴⁸	4.3 ⁵⁷	4.0 ⁵²	3.3 ⁸⁴				0.9 ⁴⁰

Returns:

■ above median
■ third quartile
■ fourth quartile

Risk:

■ below median
■ second quartile
■ first quartile

Risk Quadrant:



Excess Return Ratio:

■ above median
■ third quartile
■ fourth quartile

Tracking Error:

■ below median
■ second quartile
■ first quartile

Sharpe Ratio:

■ above median
■ third quartile
■ fourth quartile

(i) – Indexed scoring method used. Green: manager & index ranking differ by less than +/- 10 percentiles; Yellow: manager and index ranking differ by +/- 20 percentiles; Red: manager & index ranking differ by more than 20 percentiles.

Other Options: 6/30/20

Active Equity, Stable Value, and Money Market

Investment Manager	Last Quarter Return	Last Year Return	3 Year Return	5 Year Return	7 Year Return	5 Year Risk	5 Year Risk Quadrant	5 Year Excess Rtn Ratio	3 Year Tracking Error	5 Year Sharpe Ratio
Active and Other Funds										
BlackRock Strategic Completion Fd	6.9 85									
Callan Real Assets MFs										
Strategic Completion Custom Index	6.8 85									
Northern Trust ESG Fund	20.3 55	9.1 45								
Callan Lg Cap Broad MF										
MSCI USA ESG	20.4 54	9.4 44	11.6 44	10.8 43	11.6 49	16.3 92				0.6 38
International Equity Fund	19.7 30	0.2 36	1.1 50	0.2 77		19.1 34		-0.6 77	3.6 66	-0.1 76
CAI Mut Fd: Non-U.S. Equity Style										
MSCI ACWI ex US Index	16.1 70	-4.8 59	1.1 50	2.3 52	3.7 60	17.7 78				0.1 52
T. Rowe Price Small Cap	25.2 59	-0.0 45	9.5 36	9.3 31	11.0 37	21.5 89		1.2 1	4.6 83	0.4 22
CAI Mut Fd: Sm Cap Broad Style										
Russell 2000 Index	25.4 59	-6.6 56	2.0 57	4.3 53	7.2 56	23.9 64				0.1 53
T. Rowe Price Stable Value	0.6 1	2.6 1	2.5 1	2.4 1	2.5 1	0.1 89		3.3 6	0.3 7	17.3 2
Callan Stable Value CT										
FTSE 3 Mo T-Bill	0.1 99	1.6 98	1.7 85	1.2 100	0.8 99	0.4 1				-0.1 100
SSgA Inst Treasury Money Market	0.0 17	1.3 12	1.6 9	1.0 9	0.7 10	0.4 8		-3.1 22	0.0 55	-0.4 9
Callan Money Market Funds										
FTSE 3 Mo T-Bill	0.1 4	1.6 2	1.7 2	1.2 2	0.8 2	0.4 6				-0.1 2

Returns:

- above median
- third quartile
- fourth quartile

Risk:

- below median
- second quartile
- first quartile

Risk Quadrant:



Return

Risk

Excess Return Ratio:

- above median
- third quartile
- fourth quartile

Tracking Error:

- below median
- second quartile
- first quartile

Sharpe Ratio:

- above median
- third quartile
- fourth quartile

Callan

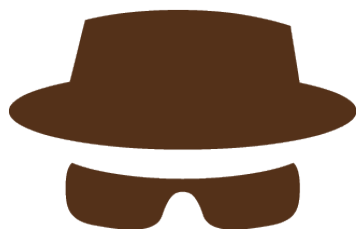
Callan Update

Published Research Highlights from 2Q20

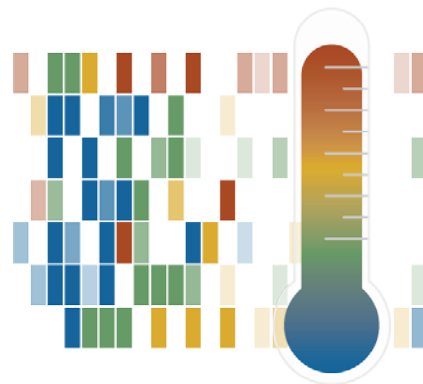
Coping with COVID-19: Investment Manager Survey



Breaking Bad: Better Call Hedge Funds?



Real Estate Indicators: Too Hot to Touch or Cool Enough to Handle?



Pandemic Reshapes the Outlook for Farmland Investments



Recent Blog Posts

Callan Survey: DC Plan Response to CARES Act Varied

Jana Steele

‘Social Washing’ and How COVID-19 Has Emphasized the ‘S’ in ESG

Aaron Quach

Plus our [blog](#) contains a wide array of other posts related to the pandemic

Additional Reading

Private Equity Trends quarterly newsletter

Active vs. Passive quarterly charts

Capital Market Review quarterly newsletter

Monthly Updates to the Periodic Table

Market Pulse Flipbook quarterly markets update

Callan Institute Events

Upcoming conferences, workshops, and webinars

“Callan College”

Introduction to Investments—Virtual

This program familiarizes institutional investor trustees and staff and asset management advisers with basic investment theory, terminology, and practices. It is held over three days with virtual modules of 2.5-3 hours. This course is designed for individuals with less than two years of experience with asset-management oversight and/or support responsibilities. Tuition is \$950 per person and includes instruction and digital materials.

Next Session: October 13-15, 2020

Additional information can be found at:
www.callan.com/cc-introduction-virtual/

“Research, education, and dialogue are more important than ever in these extraordinary times, which is why I’m pleased to announce that we are adding more webinars, and we plan to expand our events to include roundtables and other interactive digital offerings.”

Barb Gerraty
Director, Callan Institute



Upcoming Webinars/Virtual Workshops

Callan Research Café: Private Equity

October 7, 2020

October Workshop: ESG – Past, Present, & Future

October 27, 2020

In this workshop, Callan ESG specialists will share:

- New data on ESG adoption from our 2020 survey
- How we work with clients on an ‘integration’ approach to ESG investing
- An assessment of ratings providers and the value of that data in the manager search and evaluation process alongside new approaches from Callan

Register at www.callan.com/callan-institute-events

On-Demand Webinars

Visit our website for On-Demand webinar options at
www.callan.com/on-demand-webinars/

Our most recent webinar covered strategies in alternatives.

McKinley Capital Management, LLC

Relevant Mandates: Thematic Equity

Hired: 2019

Firm Information	Investment Approach	Total ARMB Mandate
<p>McKinley Capital, founded by Robert B. Gillam in 1990, is an independently owned, private limited liability company wholly owned by McKinley Capital Management, Inc. which is wholly owned by employees of McKinley Capital LLC and family trusts.</p> <p>As of 6/30/20, the firm's total assets under management were \$3.8 billion.</p> <p>Key Executive: Robert A. Gillam, CEO & CIO</p>	<p>McKinley Capital's investment decisions are based on the philosophy that excess market returns can be achieved through the construction and active management of a diversified, fundamentally sound portfolio of inefficiently priced common stocks whose earnings growth rates are accelerating above market expectations. McKinley Capital is a bottom-up growth manager. The firm employs both a systematic screening process and qualitative overview to construct and manage investment portfolios.</p> <p>McKinley Global Healthcare Transformation (GHT) seeks to exploit the rapid adoption of innovative solutions which seek to address unsustainable cost increases for healthcare delivery.</p> <p>Benchmarks: MSCI ACWI – Net and MSCI ACWI Health Care - Net</p>	<p>Assets Under Management: 7/31/2020 \$310,059,175</p>

Concerns: Declining trend in AUM and addition of new businesses in Alaska economics (acquisition of McDowell Group) and entry into private investments.

7/31/2020 Performance

	<u>3 Months</u>	<u>1-Year</u>	<u>Since Inception</u>
McKinley Healthcare Transformation	7.49%	20.42%	16.85%%
MSCI ACWI - Net	5.29%	7.20%	9.10%
MSCI ACWI Health Care – Net	4.25%	20.84%	15.60%



McKINLEY CAPITAL
MANAGEMENT, LLC

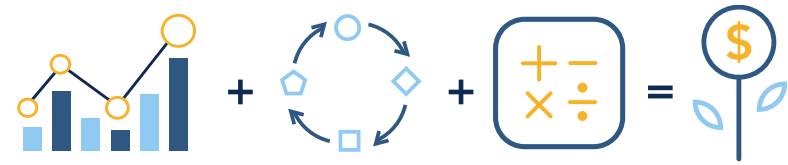
CLIMB YOUR MOUNTAIN

PRESENTATION

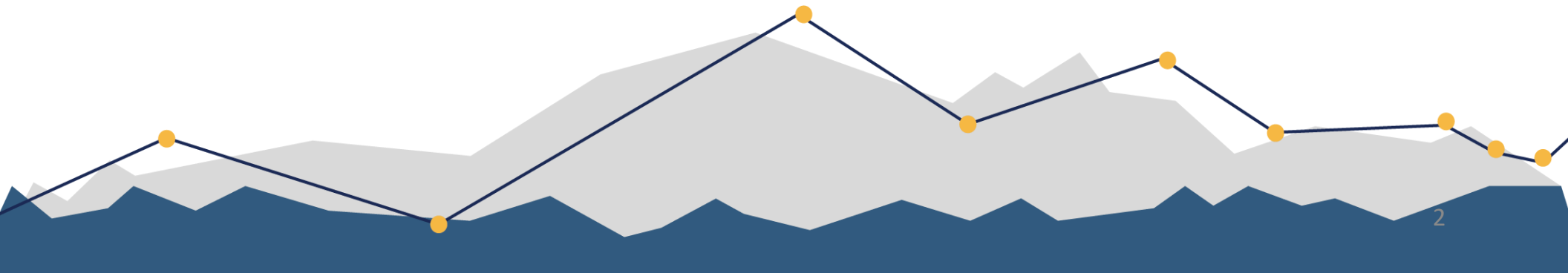
ALASKA RETIREMENT MANAGEMENT BOARD

SEPTEMBER 2020

McKinley Capital Management, LLC



- Global investment and research firm
- Specialist in quantitative growth style investing
- Data-driven methodology to identify fast-growing investment opportunities
- Anchorage, Chicago, New York, and Juneau and Abu Dhabi, UAE affiliate offices
- Founded in 1990 by Bob Gillam, second-generation Alaskan
- Today, 30 years of institutional and retail investment experience
- And 50 years of economic and policy research experience



Our Services

We offer services in four categories:

- 1 **Public Investment**
- 2 **Engineering and Solutions**
- 3 **Private Investment**
- 4 **Economic & Policy Research**

Our Team



- More than 60 professionals
- Intensive academic training
- Rigorous experience
- Guided by disciplined data-driven investment process
- Provide customized and diversified solutions

For more information on the McKinley Capital team, please see our website mckinleycapital.com/team

Our Advisors



- Scientific Advisory Board
- Founded by Dr. Harry Markowitz, Ph.D., Nobel Prize winning economist and creator of Modern Portfolio Theory
- Chaired by Dr. John Guerard, Jr., Ph.D., former McKinley Capital Director of Quantitative Research
- Plus eight industry experts
- Provide our team solid academic grounding, professional expertise, and cutting-edge technology and investment ideas

A stylized, dark blue mountain range graphic is positioned on the left side of the slide. It consists of several jagged peaks of varying heights. A thin white horizontal line extends from the left edge of the slide, passing behind the mountains and ending just before the text.

Public Investment

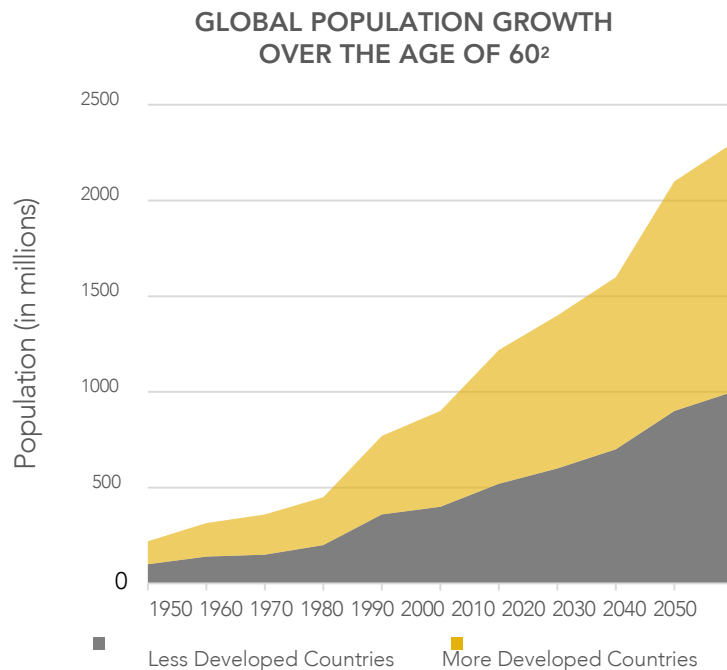
Global Healthcare Transformation



- Developed by McKinley Capital in 2019 to capture opportunity rising from transformation of global healthcare industry.
- A unique investment platform driven by rapid advances in technology-enabled services and solutions.
- Combines innovative technology, powerful analytics, and aggressive "industrial design" of healthcare marketplace to disrupt existing clinical models of traditional (global) healthcare.
- Enables a new era of "**better, faster, cheaper**" healthcare worldwide.
- Companies leading this transformation can benefit from significant organic growth prospects in large, growing global markets.
- Provide investors with potential for differentiated returns versus traditional benchmarks.

The Case For Change

- Worldwide spending on healthcare is rising to unsustainable levels
- Technology, innovation and “industrial redesign” of traditional clinical models are critical components for creating viable, sustainable solutions.
- Adoption of innovative solutions is ramping up across the global healthcare ecosystem and is reaching a tipping point which is driving market penetration and extraordinary value creation.



² U.N. World Aging Population; 2015; International DataBase



¹ IMHEHealth Spending, 2018; International Data Base

Data may represent varying time periods based on concept discussion.

Market Drivers

- Global economic and viral COVID-19 pandemic has stretched healthcare to a breaking point.
- Highlights global vulnerabilities, rising cost of being unhealthy, and priceless benefits of health, diagnostics, and preventative care.
- Companies best positioned to deliver innovative technologies, strong balance sheets, and/or access to capital will thrive and grow quickly.

HEALTHCARE TRANSFORMATION DRIVERS AND CATALYSTS

PAYMENT REFORM



Shifting payment and incentive models – “fee-for-service” to “pay-for-performance” driving a need to reorient care management models.

DIGITAL HEALTH



Proliferation of wireless and mobile technology to improve accessibility, delivery, and early identification, monitoring and management of various disease conditions.

PERSONALIZED MEDICINE



Increasing consumer engagement in delivery and coverage, with a focus towards patient satisfaction/experience and provider and insurer quality/transparency.

HEALTHCARE DELIVERY REDESIGN



Transition from higher intensity / higher cost to lower intensity/lower cost, often in a more desired setting.

PATIENT CENTERED CARE



Harnessing the power of digital data and analytics to develop new capabilities in “connected” care, population health and clinical decision support.

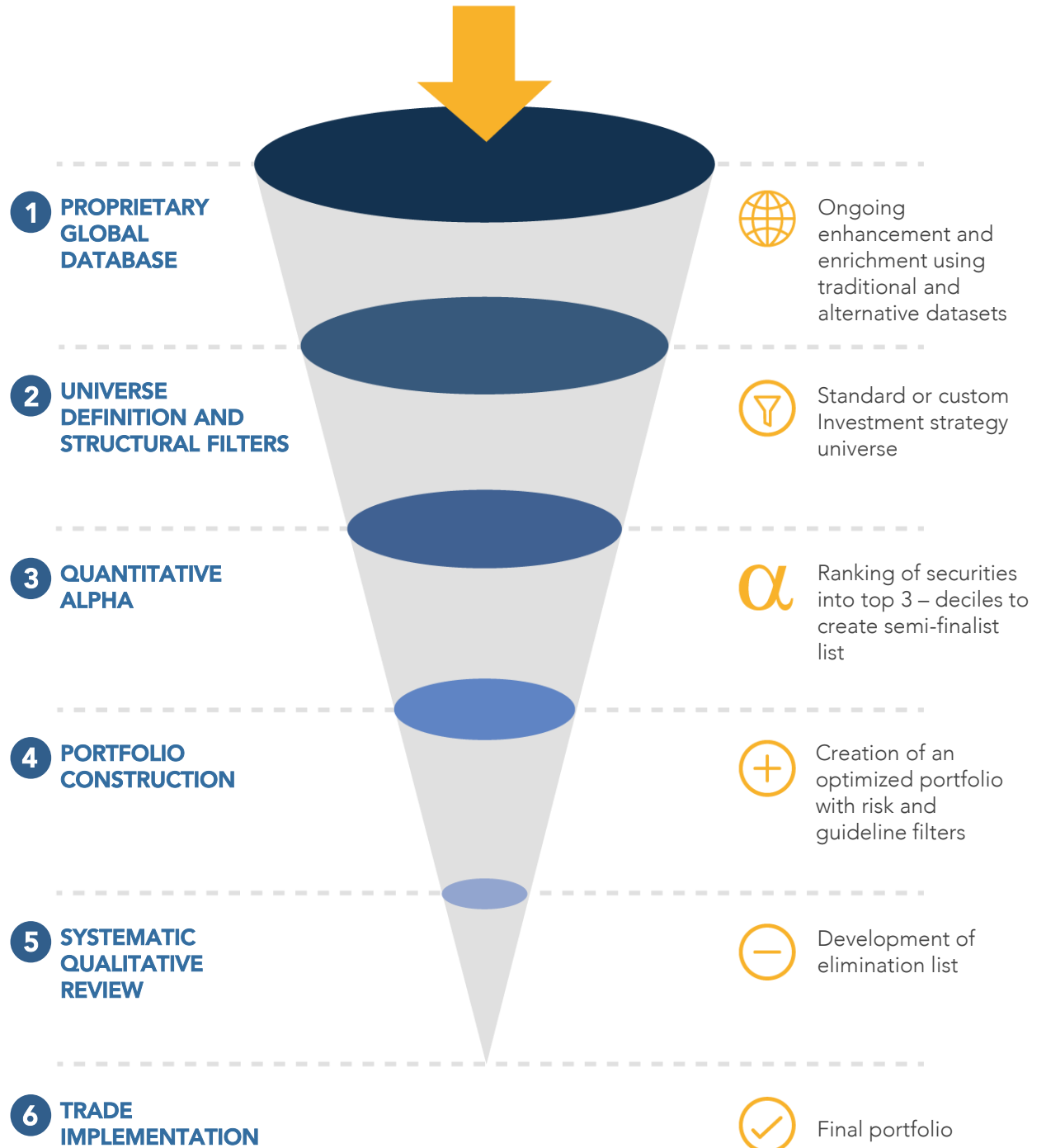
WIRELESS & MOBILE HEALTH



Development of disruptive new medical technologies (e.g. genomics, PCR diagnostics, bioinformatics) that enable personalized medicine and serve unmet/poorly met medical needs.

Our Process

McKinley Capital Management, LLC's **systematic and quantitative** investment process scours the world for fast-growing investment opportunities. We look across all sectors and geographies, using both traditional (price and fundamental) and non-traditional (unstructured and extremely large) datasets. Our portfolio solutions often have custom universe, custom risk, and/or custom selection criteria.



Investment Team

Robert A. Gillam, CFA
Chief Executive Officer
Chief Investment Officer

Scientific Advisory Board

Dr. John B. Guerard, Ph.D.
Chairman

Dr. Harry M. Markowitz, Ph.D.
Optimization & Construction

Dr. Ian Domowitz, Ph.D.
Transaction Cost Analysis

Dr. Jose Menchero, Ph.D.
Risk Modeling & Attribution

Dr. Shijie Deng, Ph. D.
Computational Research

Dr. Ganlin Xu, Ph.D.
Big Data & Data Mining

Rishi K. Narang
Sell & Non-Sell-Side Analysis

Rochester Cahan, CFA
A.I. & Machine Learning

Flora Kim
Portfolio Management

Gillian Sandler
Healthcare Transformation

Quantitative Research

Anureet Saxena, Ph.D., CFA, CIPM
Director of Quantitative Research

Xi (Lexi) Wang
Quantitative Research Analyst

Stefanus (Stef) Winarto
Quantitative Research Analyst

Chen (Miranda) Chang
Quantitative Research Analyst

Data Science

Kenneth P. Lenhart
Director of Data Science

Andrew D. Dahlin
Data Scientist

Rachel E. Waters
Data Scientist

David M. Burdick
Senior Data Engineer

Adam J. Fagan
Data Governance Manager

William T. Kleweno
Data Steward

Public Investment

M. Forrest Badgley, CFA
Director of Public Investments,
Portfolio Manager

Martino M. Boffa, CFA
Director of Alternative
Investments, Portfolio Manager

Brandon S. Rinner, CFA
Portfolio Manager

Sheldon J. Lien, CFA
Portfolio Manager

Grant M. McGregor
Portfolio Manager

Trading/Operations

Joseph J. Dobrzynski
Director of Trading/Operations

Claudia M. Jackson
Global Equity Trader

Josh Przeczewski
Director of Trade Operations

As of June 30, 2020

Does not include all McKinley Capital staff.

A stylized, dark blue mountain range graphic is positioned on the left side of the page. It features several peaks of varying heights and widths, creating a silhouette effect. A thin white horizontal line extends from the left edge of the page, passing behind the mountain range and ending just before the text.

Account Summary

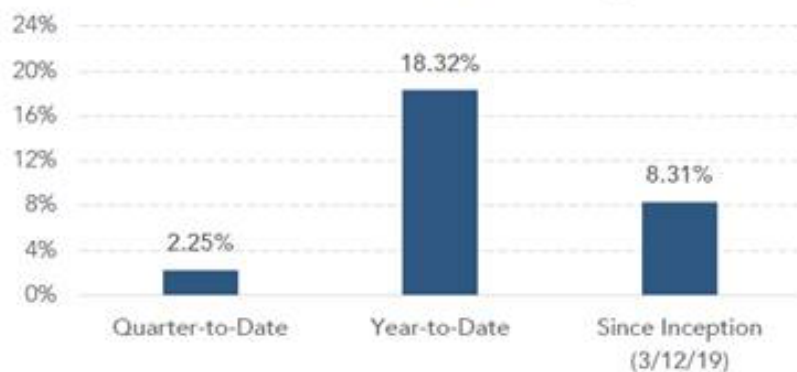
Trailing Time Periods (%)					
	1 Month	QTD	YTD	1 YR	Inception 03/12/19
Portfolio Gross	7.54	7.54	17.03	21.01	17.41
Portfolio Net	7.49	7.49	16.69	20.42	16.85
MSCI ACWI - Net	5.29	5.29	-1.29	7.20	9.10
Excess Return (Gross)	2.25	2.25	18.32	13.81	8.31
ACW Health Care - Net	4.25	4.25	6.54	20.84	15.60
Excess Return (Gross)	3.29	3.29	10.49	0.17	1.81

PERFORMANCE STATISTICS VS. MSCI ACWI

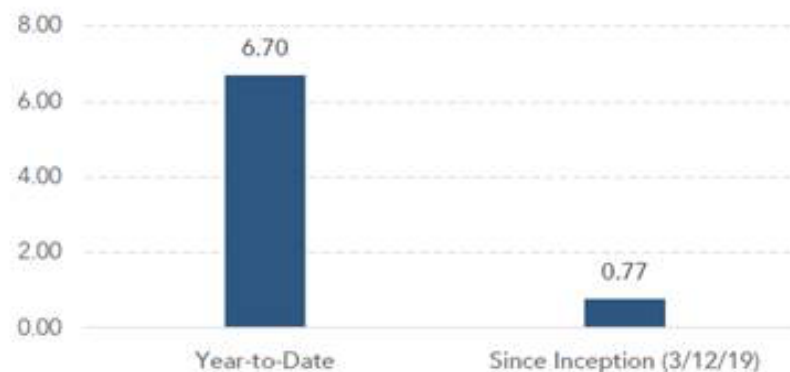
Performance Statistics vs. MSCI ACWI - Net Div, As of 7/31/20

	Quarter-to-Date		Year-to-Date		Since Inception (3/12/19)	
	Portfolio Gross	MSCI ACWI Net Div	Portfolio Gross	MSCI ACWI Net Div	Portfolio Gross	MSCI ACWI Net Div
Return (Annualized > 1yr)	7.54%	5.29%	17.03%	-1.29%	17.41%	9.10%
Excess Return (Annualized > 1yr)	2.25%	n/a	18.32%	n/a	8.31%	n/a
Annualized Std Deviation	n/a	n/a	29.42%	29.00%	19.96%	20.03%
Tracking Error	n/a	n/a	4.39%	n/a	9.23%	n/a
Sharpe Ratio	n/a	n/a	0.63	0.58	0.80	0.44
Information Ratio	n/a	n/a	6.70	n/a	0.77	n/a

Excess Return vs. MSCI ACWI Net Div
As of 7/31/20, Annualized > 1yr

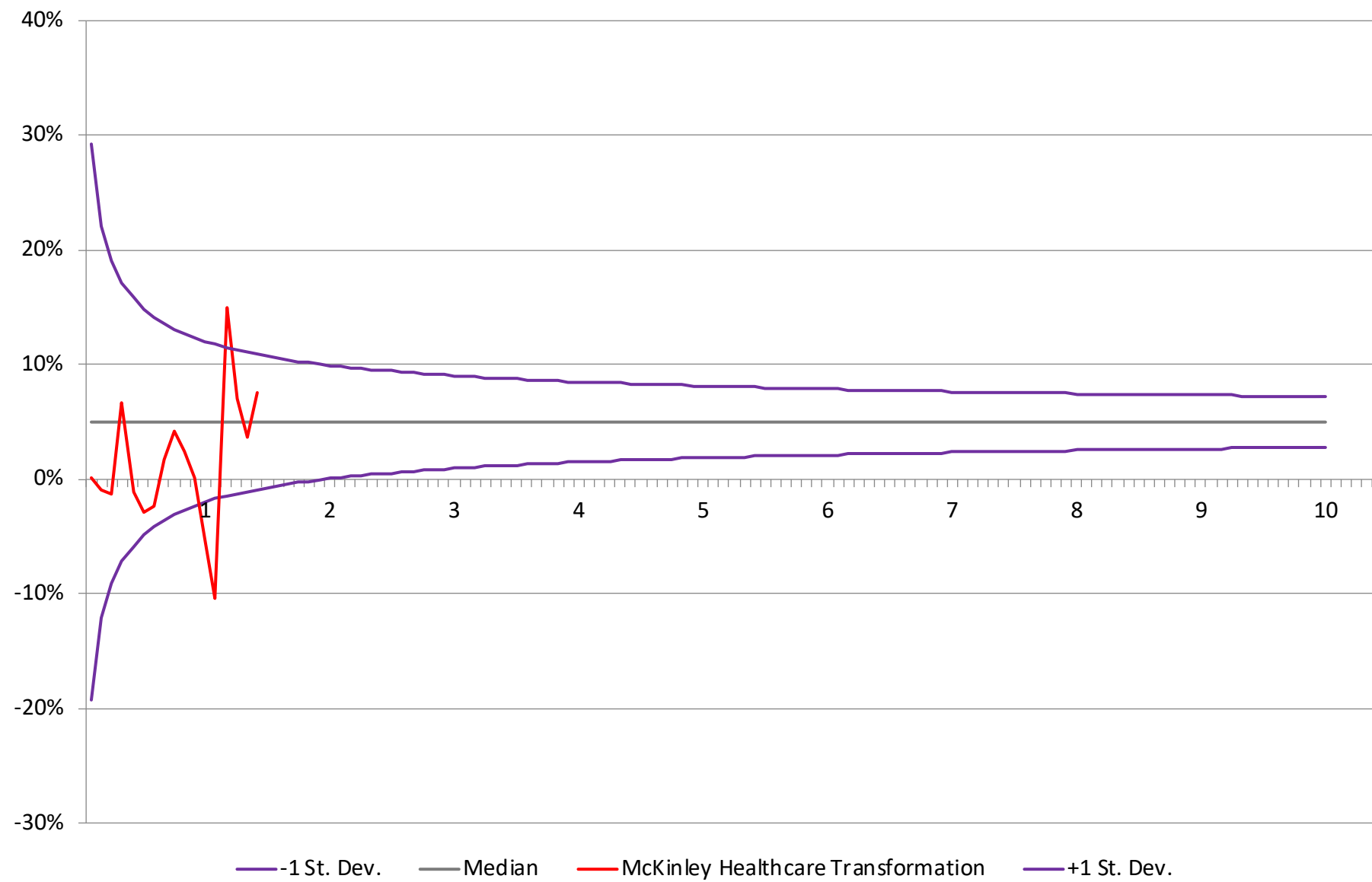


Information Ratio vs. MSCI ACWI Net Div
As of 7/31/20



Source: McKinley Capital. Past performance is not indicative of future results.

EXPECTATION ANALYSIS



Source: ARMB Staff, McKinley Capital Management, LLC data. Past performance is not indicative of future results.

Alaska Retirement Management Board - Healthcare Transformation

As Of: July 31, 2020

Currency: USD

Top 10 Active Securities (%)

Security	Country	Port Wgt	Diff Wgt
TOTAL		27.29	25.84
UnitedHealth Group Incorporated	United States	5.48	4.90
Danaher Corporation	United States	3.48	3.22
Medtronic Public Limited Company	United States	3.31	3.06
IDEXX Laboratories, Inc.	United States	2.44	2.37
Livongo Health, Inc.	United States	2.17	2.17
Aier Eye Hospital Group Co., Ltd.	China	2.10	2.10
Baxter International Inc.	United States	2.15	2.07
Veeva Systems, Inc.	United States	2.13	2.06
Stryker Corporation	United States	2.12	1.99
Jafron Biomedical Co., Ltd.	China	1.90	1.90

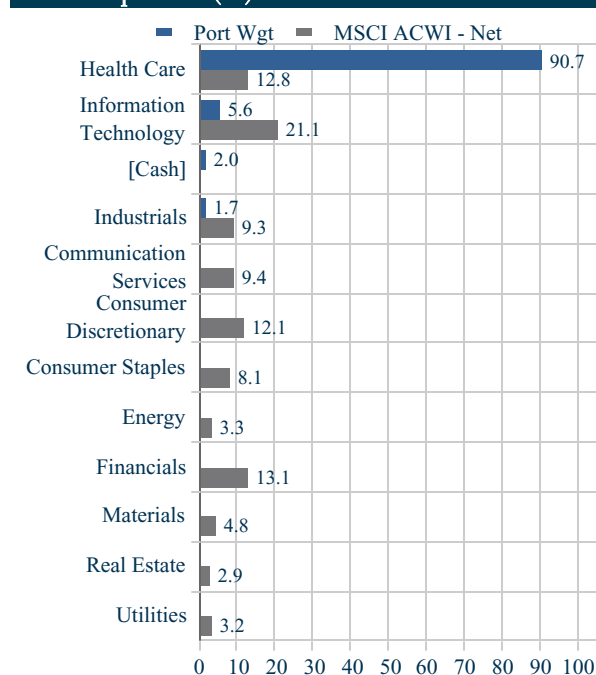
Top 10 Nominal Securities (%)

Security	Country	Wgt
TOTAL		27.32
UnitedHealth Group Incorporated	United States	5.48
Danaher Corporation	United States	3.48
Medtronic Public Limited Company	United States	3.31
IDEXX Laboratories, Inc.	United States	2.44
Livongo Health, Inc.	United States	2.17
Baxter International Inc.	United States	2.15
Veeva Systems, Inc.	United States	2.13
Stryker Corporation	United States	2.12
Aier Eye Hospital Group Co., Ltd.	China	2.10
Genmab A/S	Denmark	1.93

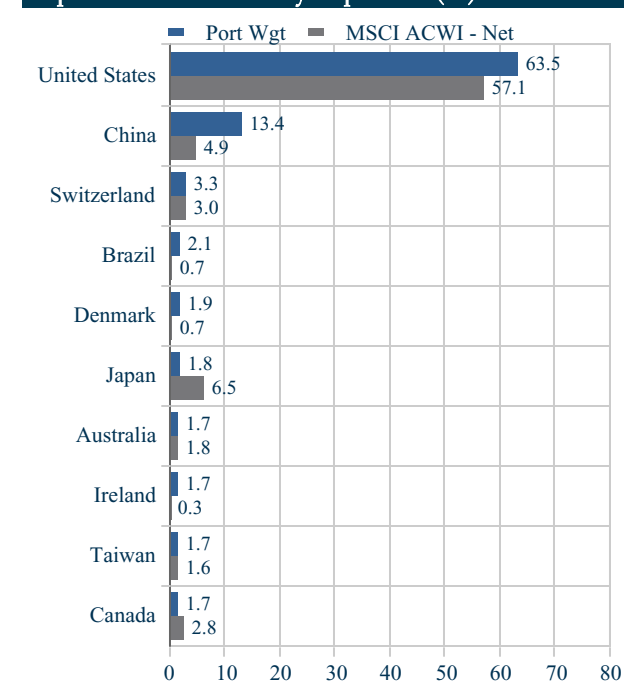
Characteristics

	Portfolio	MSCI ACWI - Net
# of Securities	72	2,986
Wtd Avg Market Cap (Mil)	63,425	276,411
FY0 to FY1 %EPS	5.60	-5.56
FY1 P/E	31.28	19.29
Dividend Yield	0.35	2.11
Price to Book	6.18	2.13
Return on Invested Capital	8.44	7.62

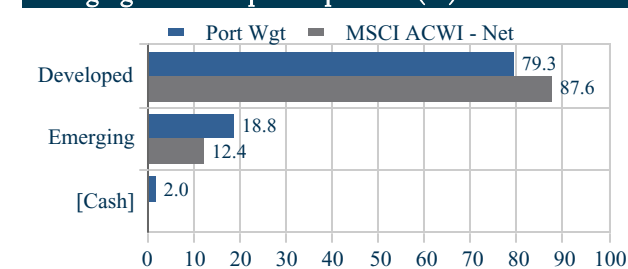
Sector Exposures (%)



Top 10 Nominal Country Exposures (%)



Emerging vs Developed Exposures (%)



Market Capitalization is weighted average; all other figures are median. Active weight vs. MSCI ACWI - Net
The securities identified and described do not represent all of the securities purchased, sold or recommended for client accounts.
The reader should not assume that an investment in the securities identified was or will be profitable.

Alaska Retirement Management Board - Healthcare Transformation

As Of: July 31, 2020

Currency: USD

Top 10 Active Securities (%)

Security	Country	Port Wgt	Diff Wgt
TOTAL		19.58	18.80
Livongo Health, Inc.	United States	2.17	2.17
Aier Eye Hospital Group Co., Ltd.	China	2.10	2.08
IDEXX Laboratories, Inc.	United States	2.44	1.91
Jafron Biomedical Co., Ltd.	China	1.90	1.89
Amicus Therapeutics, Inc.	United States	1.87	1.87
Double Medical Technology, Inc.	China	1.87	1.87
Chemed Corporation	United States	1.84	1.84
R1 RCM, Inc.	United States	1.73	1.73
ICON plc	Ireland	1.73	1.73
STERIS Plc (Ireland)	United States	1.93	1.71

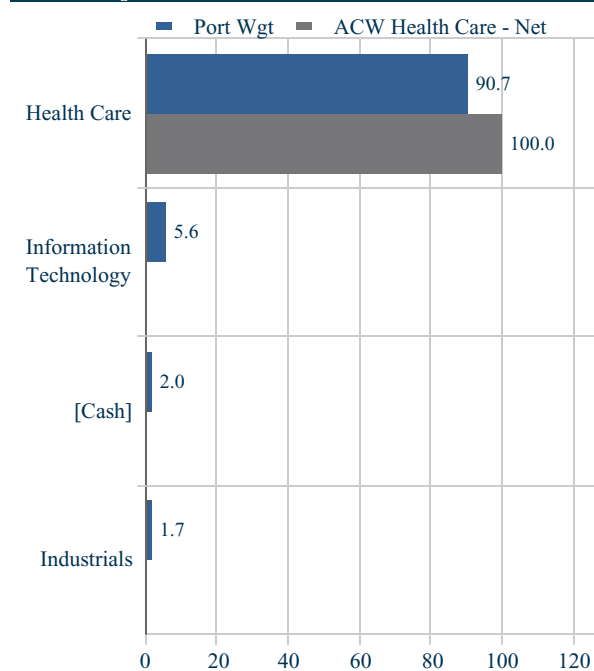
Top 10 Nominal Securities (%)

Security	Country	Wgt
TOTAL		27.32
UnitedHealth Group Incorporated	United States	5.48
Danaher Corporation	United States	3.48
Medtronic Public Limited Company	United States	3.31
IDEXX Laboratories, Inc.	United States	2.44
Livongo Health, Inc.	United States	2.17
Baxter International Inc.	United States	2.15
Veeva Systems, Inc.	United States	2.13
Stryker Corporation	United States	2.12
Aier Eye Hospital Group Co., Ltd.	China	2.10
Genmab A/S	Denmark	1.93

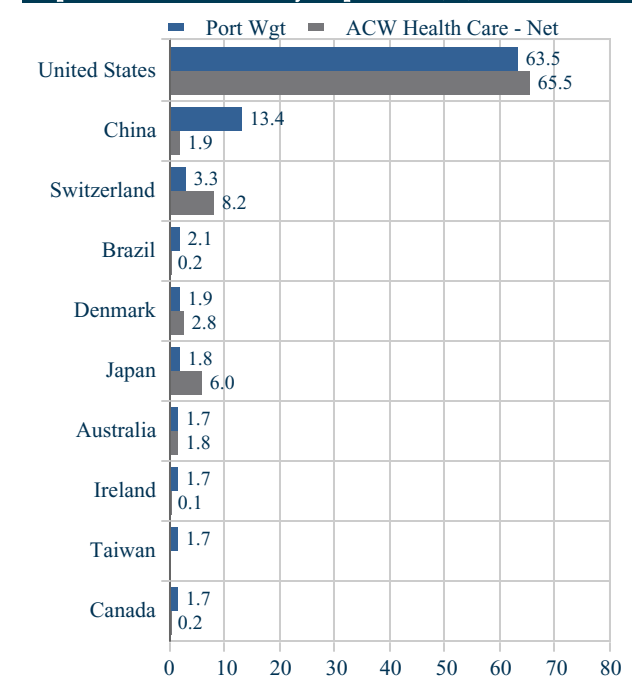
Characteristics

	Portfolio	ACW Health Care - Net
# of Securities	72	262
Wtd Avg Market Cap (Mil)	63,434	125,065
FY0 to FY1 %EPS	5.47	6.51
FY1 P/E	31.28	29.80
Dividend Yield	0.35	0.54
Price to Book	6.18	5.52
Return on Invested Capital	8.79	9.65

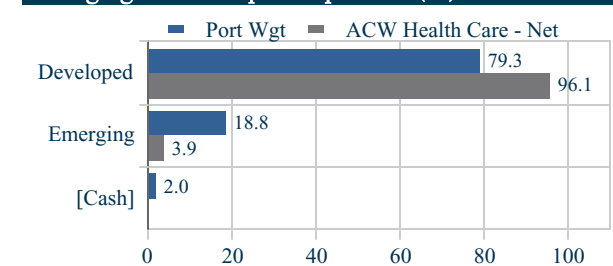
Sector Exposures (%)



Top 10 Nominal Country Exposures (%)



Emerging vs Developed Exposures (%)



Market Capitalization is weighted average; all other figures are median. Active weight vs. MSCI ACW Health Care - Net
 The securities identified and described do not represent all of the securities purchased, sold or recommended for client accounts.
 The reader should not assume that an investment in the securities identified was or will be profitable.

Alaska Retirement Management Board - Healthcare Transformation
QTD Attribution Summary
As Of: July 31, 2020
Currency: USD

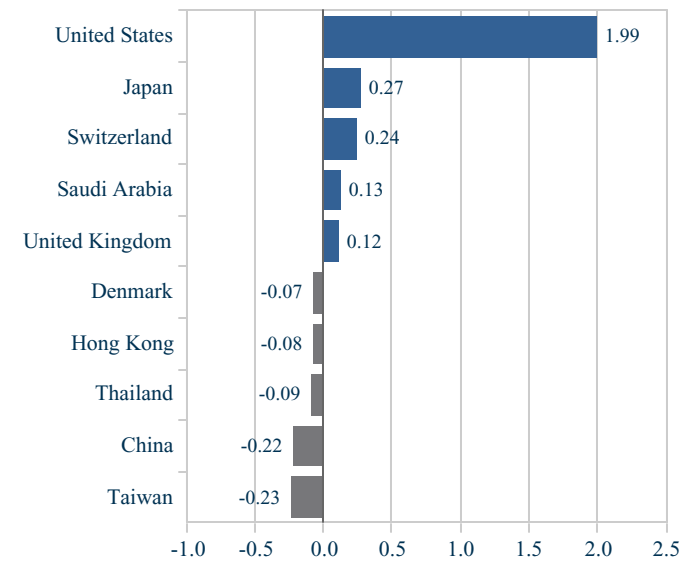
Top 5 Securities

Security	Country	GICS Sector	Total Effect
Livongo Health, Inc.	United States	Health Care	0.87
IDEXX Laboratories, Inc.	United States	Health Care	0.30
Danaher Corporation	United States	Health Care	0.29
R1 RCM, Inc.	United States	Health Care	0.27
Hologic, Inc.	United States	Health Care	0.23

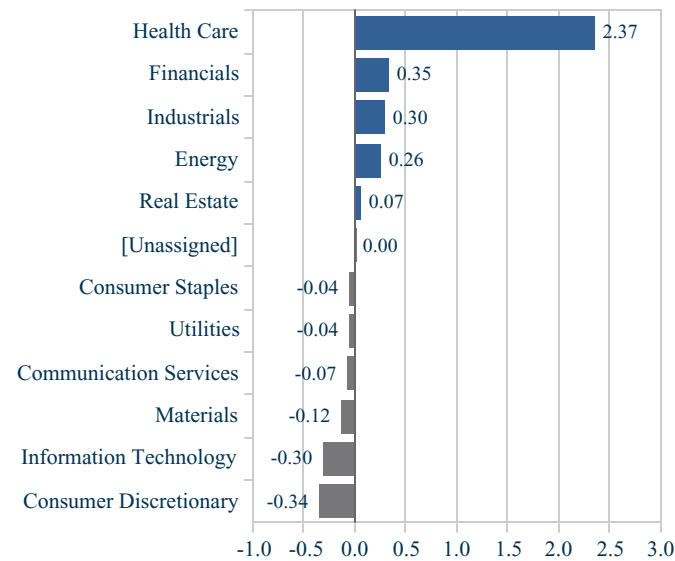
Bottom 5 Securities

Security	Country	GICS Sector	Total Effect
Masimo Corporation	United States	Health Care	-0.14
Asymchem Laboratories (Tianjin) Co., Ltd.	China	Health Care	-0.15
Amicus Therapeutics, Inc.	United States	Health Care	-0.19
Olympus Corp.	Japan	Health Care	-0.20
Double Medical Technology, Inc.	China	Health Care	-0.36

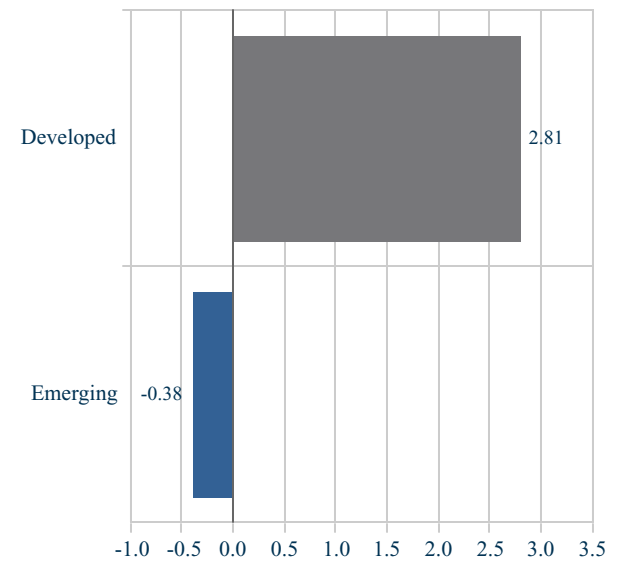
Country Total Effects (Top 5 / Bottom 5)



Sector Total Effects



Emerging vs Developed Total Effect

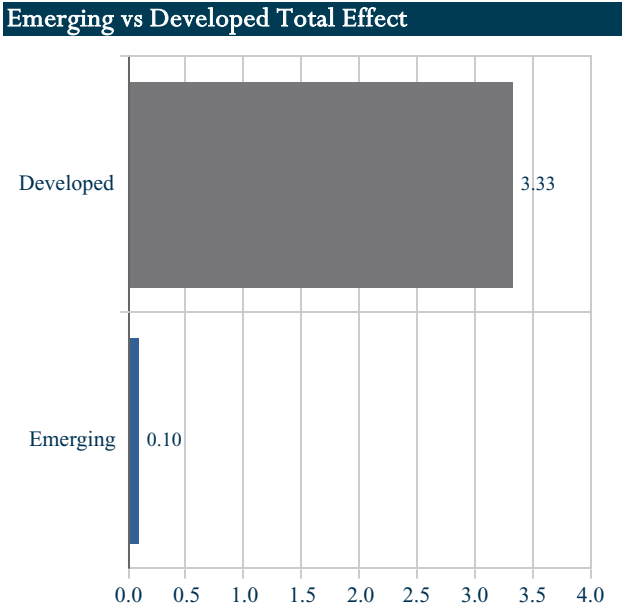
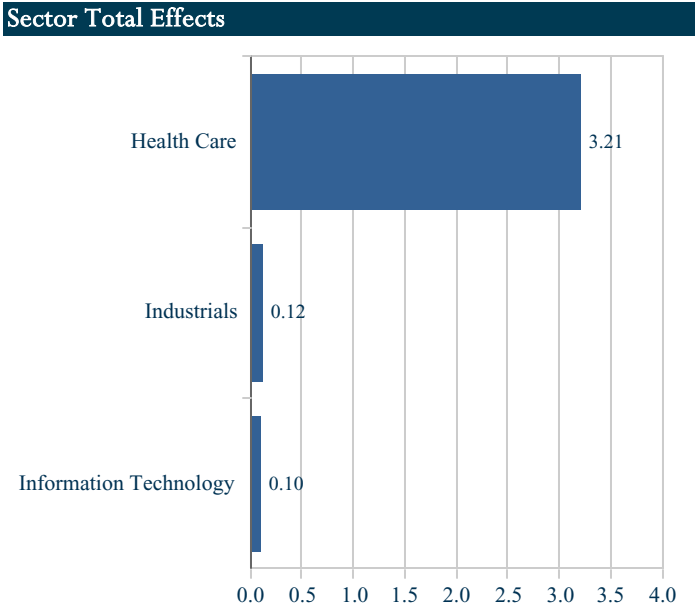
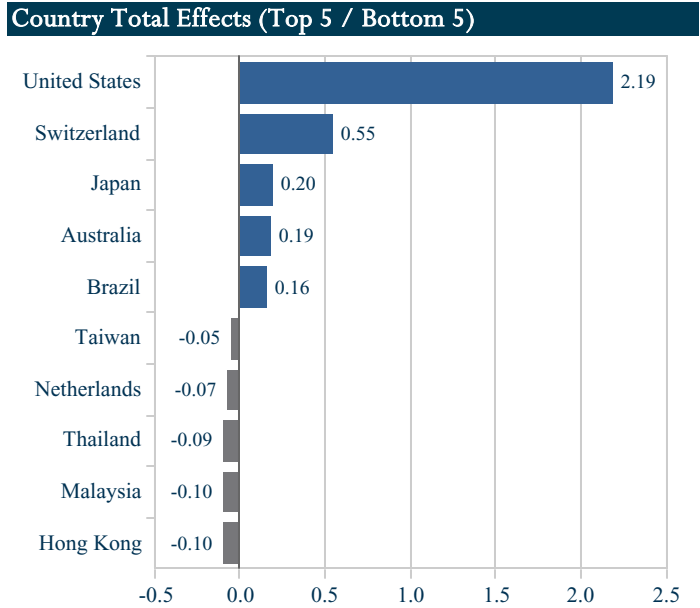


Performance is gross unless otherwise noted. Past performance is not indicative of future results. Primary Benchmark: MSCI ACWI - Net.

Alaska Retirement Management Board - Healthcare Transformation
QTD Attribution Summary
As Of: July 31, 2020
Currency: USD

Top 5 Securities			
Security	Country	GICS Sector	Total Effect
Livongo Health, Inc.	United States	Health Care	0.89
R1 RCM, Inc.	United States	Health Care	0.28
IDEXX Laboratories, Inc.	United States	Health Care	0.27
Catalent, Inc.	United States	Health Care	0.21
Hologic, Inc.	United States	Health Care	0.21

Bottom 5 Securities			
Security	Country	GICS Sector	Total Effect
Asymchem Laboratories (Tianjin) Co., Ltd.	China	Health Care	-0.14
Olympus Corp.	Japan	Health Care	-0.15
Amicus Therapeutics, Inc.	United States	Health Care	-0.17
Thermo Fisher Scientific Inc.	United States	Health Care	-0.20
Double Medical Technology, Inc.	China	Health Care	-0.34



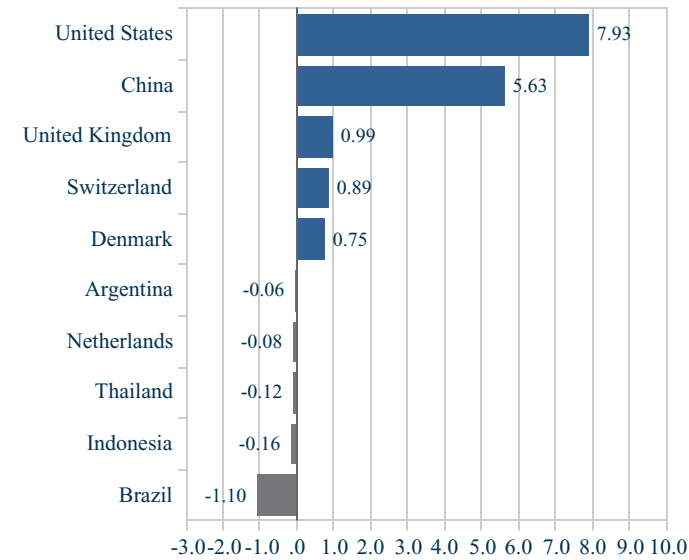
Performance is gross unless otherwise noted. Past performance is not indicative of future results. Primary Benchmark: MSCI ACW Health Care - Net.

Alaska Retirement Management Board - Healthcare Transformation
YTD Attribution Summary
As Of: July 31, 2020
Currency: USD

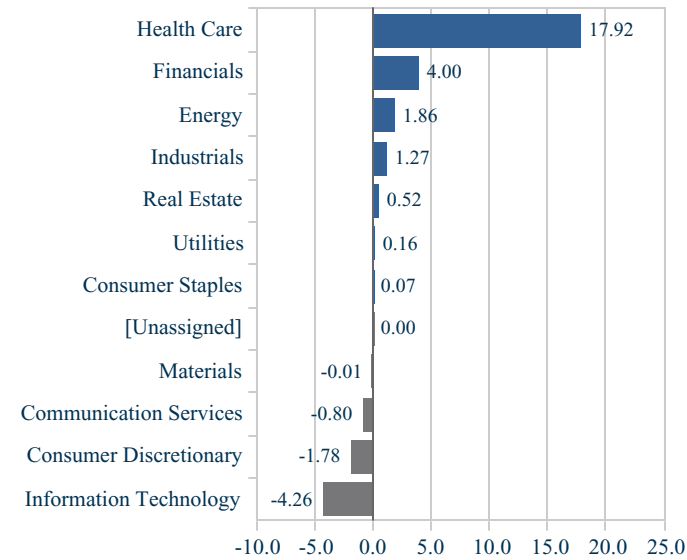
Top 5 Securities			
Security	Country	GICS Sector	Total Effect
Livongo Health, Inc.	United States	Health Care	2.01
Jafron Biomedical Co., Ltd.	China	Health Care	1.69
Veeva Systems, Inc.	United States	Health Care	1.42
Double Medical Technology, Inc.	China	Health Care	1.21
Aier Eye Hospital Group Co., Ltd.	China	Health Care	1.00

Bottom 5 Securities			
Security	Country	GICS Sector	Total Effect
Medtronic Public Limited Company	United States	Health Care	-0.38
Perficient, Inc.	United States	Information Technology	-0.39
Straumann Holding AG	Switzerland	Health Care	-0.45
Microsoft Corporation	United States	Information Technology	-0.52
Fleury SA	Brazil	Health Care	-0.86

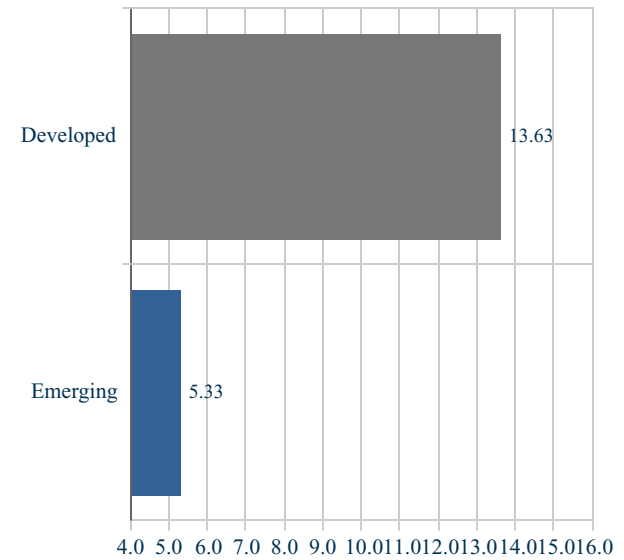
Country Total Effects (Top 5 / Bottom 5)



Sector Total Effects

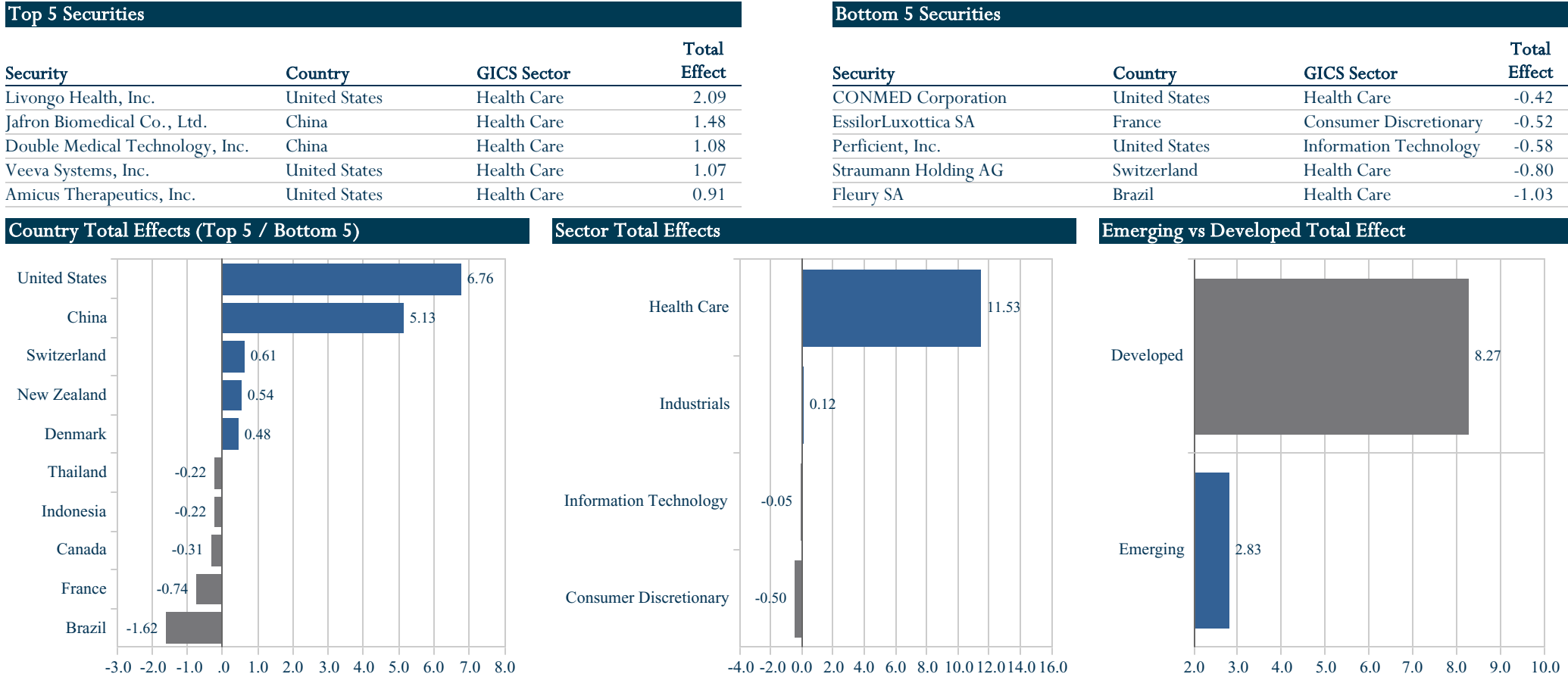


Emerging vs Developed Total Effect



Performance is gross unless otherwise noted. Past performance is not indicative of future results. Primary Benchmark: MSCI ACWI - Net.

Alaska Retirement Management Board - Healthcare Transformation
YTD Attribution Summary
As Of: July 31, 2020
Currency: USD



Performance is gross unless otherwise noted. Past performance is not indicative of future results. Primary Benchmark: MSCI ACW Health Care - Net.

ASSET SUMMARY
Alaska Retirement Management Board
Healthcare Transformation
July 31, 2020

Reporting Currency: United States Dollar

PORTFOLIO COMPOSITION

	Market Value	Pct. Assets
Equities	303,734,509.81	98.0
Cash	6,251,700.78	2.0
Accruals	72,964.20	0.0
Other	0.00	0.0
Total	310,059,174.79	100.0

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Biographies

PORTFOLIO MANAGEMENT TEAM BIOGRAPHIES

Robert A. Gillam, CFA

Chief Executive Officer and Chief Investment Officer

B.S. Economics, Concentration: International Finance & Strategic Management, The Wharton School, University of Pennsylvania

M. Forrest Badgley, CFA

Director of Investments/Portfolio Manager

M.B.A. Northwestern University, Kellogg School of Management; B.A. Philosophy, Dartmouth College

Martino M. Boffa, CFA

Director of Alternative Investments, Portfolio Manager

M.S. Finance, Stuart School of the Illinois Institute of Technology M.S. Economics & Business Administration, Università Cattolica del Sacro Cuore, Milan

Sheldon J. Lien, CFA

Portfolio Manager

B.S. Business, DeVry Institute of Technology

McKinley Capital is led by CEO/CIO Robert A. Gillam, CFA. Rob leads the firm's business strategy and investment process supported by a management team and Board of Directors. With the firm since 1994, Rob is the principal strategist behind McKinley Capital innovations including Non-U.S., MEASA, Global Healthcare, and the Engineering and Solutions platform. Rob is an Advisory Board Member of the Jacobs Levy Equity Management Center for Quantitative Financial Research at the Wharton School. He sits on the Wharton Global Family Alliance and the Rasmuson Foundation investment committee. Rob has written numerous pieces of research including Investing in Global Equity Markets with Particular Emphasis on Chinese Stocks co-authored with Dr. Harry Markowitz, Dr. John Guerard Jr., and Dr. Shijie Deng. Rob has been featured on the Bloomberg Invest forum, at the Milken Global Conference, and the Institute for Fiduciary Education.

Forrest Badgley joined McKinley Capital's Quantitative Research Team in 2004 and worked on maintenance and enhancements to the firm's investment models. In 2006, he was formally promoted to Portfolio Manager, participating in portfolio construction, qualitative review and security selection across a variety of strategies. In 2020, Mr. Badgley was promoted to Director of Public Investments, Portfolio Manager and works closely with CIO Rob Gillam to lead the Portfolio Management team in all aspects of model implementation across all firm strategies. Mr. Badgley has over 25 years of investment industry experience which includes work on the floor of the Chicago Board of Options Exchange, the Chicago Board of Trade, and proprietary currency and commodities futures trading desks. Prior to joining McKinley Capital, Mr. Badgley worked on the proprietary futures trading desk for Aspire Trading and as a Quantitative Risk Management Analyst for Bank One.

Martino Boffa joined McKinley Capital in 2009 as Director of Alternatives and Portfolio Manager. Martino has more than 20 years of investment industry experience with over 16 years in alternative investments on both the buy and sell sides. Under the direction of senior management, Martino is responsible for the design, development, and implementation of alternative structures for the firm. Previously, Martino was Senior Director of Arbitrage Strategies with Credit Suisse and managed a market neutral investment portfolio. Prior to that, he worked at Société Générale where he was Managing Director of Hedge Fund Sales specializing in European equities.

Sheldon Lien joined McKinley Capital's Portfolio Management Team in 1995 and worked closely with the firm's programmers, providing valuable assistance in the development of McKinley Capital's proprietary computer software systems. Sheldon was promoted to Portfolio Manager in 1997 and participates as a member of McKinley Capital's Portfolio Management Team and shares responsibility for risk analysis and portfolio construction.

PORTFOLIO MANAGEMENT TEAM BIOGRAPHIES

Brandon S. Rinner, CFA
Portfolio Manager
B.S. Applied Mathematics,
University of Alaska - Anchorage

Brandon Rinner joined McKinley Capital's Portfolio Management Team in 1998. He has capitalized on his studies in applied mathematics to assist in a variety of portfolio management functions including back test models, quantitative models, and qualitative stock research. Brandon was promoted to Portfolio Manager in 2001 and participates as a member of McKinley Capital's Portfolio Management Team.

Grant M. McGregor
Portfolio Manager
M.B.A. Capital Markets, University of Alaska – Fairbanks;
B.B.A. Finance, University of Alaska - Fairbanks

Grant McGregor joined McKinley Capital's Portfolio Management team in 2011 as a Portfolio Assistant. Since joining the team he has assisted in a variety of portfolio management functions that include qualitative stock research, risk analysis, and model implementation. Grant was promoted to Portfolio Manager in 2017 and participates as a member of McKinley Capital's Portfolio Management Team.

TRADING & OPERATIONS TEAM BIOGRAPHIES

Joseph J. Dobrzynski
Director of Trading and Operations
M.B.A. Finance and Derivative Markets, Loyola University
Chicago, Graduate School of Business
B.B.A. Accounting, Loyola University Chicago

Joe Dobrzynski joined McKinley Capital as Head Trader in 2007. As Director of Trading and Operations, Joe manages the Global Equity Trading Team and Trading Operations Department. Before relocating to Alaska to join McKinley Capital, Mr. Dobrzynski spent ten years at William Blair & Company, four of them as Head of International Equity Trading. In that capacity, he directed the creation of the international equity trading desk and established an automated operations system.

Claudia M. Jackson
Global Equity Trader
Bachelor of Commerce Honors Degree (cum laude)
Advanced Finance and Investment Management,
University of South Africa
Bachelor of Commerce (cum laude),
Finance, Economics and Law,
University of South Africa

Claudia Jackson joined McKinley Capital in 2006 as an Operations Risk Specialist and was involved in infrastructure and trade-related projects. In 2007 Claudia became a Trader and formally joined McKinley Capital's Global Equity Trading Team where she is responsible for execution of the firm's domestic and Non-U.S. equities trading. Prior to joining McKinley Capital, Claudia worked for Citibank in South Africa and two Canadian investment managers where she gained experience in foreign exchange trading and retail equity trading in both the U.S. and Canadian equity markets.

QUANTITATIVE RESEARCH TEAM BIOGRAPHIES

Dr. Anureet Saxena, Ph.D., CFA

Director of Quantitative Research

Ph.D. Management Science, Carnegie Mellon University ; M.S.
Management Science,
Carnegie Mellon University;
M.S. Economics, Purdue University

Kenneth P. Lenhart

Director of Data Science

M.B.A. with concentrations in Analytic Finance, Econometrics,
and Statistics, University of Chicago, Chicago, IL ;
B.A. Economics, Northwestern University, Evanston, IL

Xi (Lexi) Wang

Quantitative Research Analyst

M.S. Quantitative and Computational Finance,
Georgia Institute of Technology;
B.A. Math & Economics, Agnes Scott College

Stefanus (Stef) Winarto

Quantitative Research Analyst

M.S. Quantitative and Computational Finance, Georgia Institute
of Technology; B.S. Electrical & Computer Engineering, Purdue
University

Chen (Miranda) Chang

Quantitative Research Analyst

M.S. Quantitative and Computational Finance, Georgia Institute
of Technology; B.S. Applied Mathematics,
B.A. Economics, University of California, Los Angeles

Dr. Anureet Saxena, Ph.D., CFA, CIPM joined McKinley Capital in 2020 as the Director of Quantitative Research. This followed Anureet's many year tenure on the firm's Scientific Advisory Board and his close collaboration with Dr. John Guerard, Ph.D., McKinley Capital's former Director of Quantitative Research, on several publications including the new release *Quantitative Corporate Finance* (John B. Guerard, Jr., Anureet Saxena and Mustafa Gultekin, Revised edition, New York: Springer, 2020). Anureet's academic pedigree, industry-leading research, and hands-on investment knowledge is an asset to McKinley Capital's Leadership Team and Quantitative Research Department. Anureet and his team continue to conduct thorough reviews and enhancements of the firm's investment methodology. Before joining McKinley Capital, Anureet worked for Lazard Asset Management as a Portfolio Manager and Analyst, and as a Director with Assiduous Investments, LLC. He was awarded the 2014 Excellence in Economics Scholarship from the University of Purdue where he was a visiting professor. He received his Ph.D. in 2008 at Carnegie Mellon University and is a CFA charterholder. Prior to teaching, he worked in the financial industry with Allianz Global Investors as a Vice President, and Axioma Inc. as a Senior Research Associate. He has published articles in the *Journal of Investment Management*, the *Journal of Asset Management*, the *Journal of Risk*, and the *Journal of Investing*.

Ken Lenhart joined McKinley Capital as a Portfolio Associate in 2011, became a member of McKinley Capital's Global Quantitative Research Team, and in 2019 was promoted to Director of Data Science. In this role, Ken manages the Data Science Team and is responsible for development and management of the firm's data governance. He also serves on the McKinley Capital Leadership Team. Prior to joining McKinley Capital, Ken was a Director of Equities and Quantitative Research for Midwest Asset Management, Inc, and worked at Deloitte Consulting as a Systems Analyst providing financial data model and securities expertise.

Lexi Wang joined McKinley Capital as a Quantitative Research Analyst in 2016. She works with McKinley Capital's Global Quantitative Research Team to maintain and enhance the firm's investment models. Lexi interned with China Citic Bank where she supported brokers by analyzing companies and evaluated and monitored their credit risk. She was also an intern for Management Center Europe and Georgia State University.

Stef Winarto joined McKinley Capital as a Quantitative Research Analyst in 2018. He works with McKinley Capital's Global Quantitative Research Team to maintain and enhance the firm's investment models. Stef was an Electrical and Software Engineer for Cummins Power Generation and a Quantitative Researcher for Pinnacle Investment.

Miranda Chang joined McKinley Capital as a Quantitative Research Analyst in 2018. She works with McKinley Capital's Global Quantitative Research Team to maintain and enhance the firm's investment models. Miranda was a Quantitative Model Development Analyst Intern for SunTrust Bank and an Investment Analyst Intern for CITIC Securities.

SCIENTIFIC ADVISORY BOARD BIOGRAPHIES

Dr. John B. Guerard Jr., Ph.D. **Chairman**

Ph.D. Finance, University of Texas – Austin
M.S.I.M. Finance, Georgia Institute of Technology
M.A. Economics, University of Virginia
A.B. Economics, Duke University, cum laude

Dr. John Guerard, Ph.D., joined McKinley Capital as Director of Quantitative Research in 2005. Known affectionately around the firm as Dr. G, John focused on the maintenance and enhancement of the firm's quantitative capabilities and investment models. His passion for global equity markets, along with his academic credentials and broad practitioner experience, made him an invaluable member of the McKinley Capital team. Dr. Guerard is a winner of the esteemed Moskowitz Prize, the only global award recognizing outstanding quantitative research in sustainable and responsible investing. In 2020, John took on a new role as Chairman of the firm's Scientific Advisory Board and transitioned the Director of Quantitative Research role to McKinley Capital Scientific Advisory Board member Dr. Anureet Saxena, Ph.D., CFA, CIPM. John and Anureet worked together to co-author the book *Quantitative Corporate Finance* (John B. Guerard, Jr., Anureet Saxena and Mustafa Gultekin, Revised edition, New York: Springer, 2020). Prior to his tenure at McKinley Capital, John held a number of senior-level positions including Vice President for Daiwa Securities Trust Co. where he co-managed the Japan Equity Fund with Nobel Prize winner Dr. Harry Markowitz, Ph.D. He is also a former adjunct faculty member and faculty member of the Wharton School of the University of Pennsylvania and Rutgers University Graduate School of Management.

Dr. Harry M. Markowitz, Ph.D. **Founder, Portfolio Optimization & Construction** Ph.D. Economics, University of Chicago M.A. Economics, University of Chicago Ph.B. University of Chicago

Dr. Harry Markowitz, Ph.D., joined McKinley Capital's Scientific Advisory Board in 2012. In his distinguished career, Dr. Markowitz has served in various academic posts at many universities, including Baruch College, London School of Economics, London Business School, University of Tokyo, Rutgers University, Hebrew University, the Wharton School and UCLA. Dr. Markowitz has applied computer and mathematical techniques to various practical decision-making areas. In finance: in an article in 1952 and a book in 1959 he presented what is now referred to as MPT, "modern portfolio theory." This has become a standard topic in college courses and texts on investments, and is widely used for asset allocation, risk control and attribution analysis by institutional investors and financial planners. In other areas: Dr. Markowitz developed "sparse matrix" techniques for solving very large mathematical optimization problems. These techniques are now standard in production software for optimization programs. Dr. Markowitz also designed and supervised the development of the SIMSCRIPT programming language. SIMSCRIPT has been widely used for programming computer simulations of systems such as factories, transportation systems and communication networks. In 1989 Dr. Markowitz received The John von Neumann Award from the Operations Research Society of America for his work in portfolio theory, sparse matrix techniques and SIMSCRIPT. In 1990 he shared The Nobel Prize in Economics for his work on portfolio theory. Dr. Markowitz is best known for his pioneering work in Modern Portfolio Theory, studying the effects of asset risk, return, correlation and diversification on probable investment portfolio returns. In his years on the McKinley Capital Scientific Advisory Board, Dr. Markowitz has published articles with Dr. Xu and Dr. Guerard on domestic and global stock selection and the role of earnings forecasting in stock selection modeling.

SCIENTIFIC ADVISORY BOARD BIOGRAPHIES

Dr. Shijie Deng, Ph.D. **Computational Finance**

Ph.D. Industrial Engineering and Operations Research,
University of California; M.S. Mathematics,
University of Minnesota at Minneapolis;
B.S. Applied Mathematics, Peking University

Rochester Cahan, CFA **A.I. & Machine Learning**

Bachelor of Science and Bachelor of Business Studies
double degree in Mathematical Physics and Finance,
Massey University, New Zealand

Dr. Ian Domowitz, Ph.D. **Transaction Cost Analysis**

Ph.D. Economics, University of California, San Diego
B.A. Economics, University of Connecticut

Dr. Jose Menchero, Ph.D., CFA **Risk Modeling & Attribution**

Ph.D. Theoretical Physics, University of California, Berkeley
B.S. Aerospace Engineering,
University of Colorado at Boulder

Dr. Shijie Deng, Ph.D. joined McKinley Capital's Scientific Advisory Board in 2020 and provides valuable pedigree and research experience to the Board and the firm. Dr. Deng is an Associate Professor in the H. Milton Stewart School of Industrial and Systems Engineering and former director of the Quantitative and Computational Finance (QCF) master's Program, both at Georgia Institute of Technology. Dr. Deng's research interests include financial asset pricing and real options valuation, financial engineering applications in energy markets, electricity transmission pricing and auction design, risk management and contract theory in supply chains, stochastic modeling and simulation. He has consulted with several private and public companies on issues of pricing, risk management, and asset valuation in the deregulated electricity industry. He received a B.S. in applied mathematics from Peking University in P.R. China, an M.S. in mathematics from the University of Minnesota, and a Ph.D. in industrial engineering and operations research from the University of California.

Rocky Cahan joined McKinley Capital's Scientific Advisory Board in 2013. Rocky has more than ten years of investment industry experience and is currently the U.S. Portfolio Strategist at Empirical Research Partners LLC. Before joining Empirical Research Partners LLC in 2013, Rocky was the head of U.S. Quantitative Strategy for Deutsche Bank in New York. During his tenure there the team was top-ranked for quantitative research in the Institutional Investor All-America Research Team survey for three consecutive years from 2011 through 2013. Before Deutsche Bank he also held quantitatively-focused positions at Macquarie Bank and Citigroup in both New York and Sydney, Australia from 2003 through 2010. In addition to his highly regarded practitioner research, Rocky has published a number of academic articles in top journals including The Journal of Empirical Finance, The Journal of Banking and Finance, and The Journal of Portfolio Management. In his years on the McKinley Capital Scientific Advisory Board, Rocky has published an article with Robert A. Gillam and Dr. Guerard on text recognition in global stock selection modeling.

Dr. Domowitz, Ph.D. is a Managing Director at Investment Technology Group, Inc., responsible for ITG Solutions Network, Inc., and a member of the company's Management and Executive Committees. Prior to joining the company in 2001, he served as the Mary Jean and Frank P. Smeal Professor of Finance at Pennsylvania State University and previously was the Household International Research Professor of Economics at Northwestern University. A former member of the NASD's Bond Market Transparency Committee, he also served as chair of the Economic Advisory Board of the NASD. Dr. Domowitz has held positions with Northwestern's Kellogg Graduate School of Management, Columbia University, the Commodity Futures Trading Commission, the International Monetary Fund, and the World Bank.

Dr. Jose Menchero, Ph.D., joined McKinley Capital's Scientific Advisory Board in 2015. Dr. Menchero is the Head of Portfolio Analytics at Bloomberg. He was the founder of Menchero Portfolio Analytics Consulting, a financial services firm dedicated to helping its clients achieve superior investment performance through the application of advanced quantitative techniques and specializes in the areas of portfolio construction, factor modeling, and risk analysis. Prior to founding Menchero Portfolio Analytics Consulting in 2015, he served from 2007 to 2014 as a managing director and Global Head of Research at MSCI and was responsible for portfolio analytics, portfolio construction research and directed the development of Barra equity risk models. Before joining MSCI, Dr. Menchero served as the Director of Research at Thomson Financial. In this position, Dr. Menchero pioneered several innovative techniques in risk and performance analysis that have since become industry standards. Prior to entering the finance industry, he was a physics professor at the University of Rio de Janeiro, Brazil.

SCIENTIFIC ADVISORY BOARD BIOGRAPHIES

Rishi K. Narang
Sell-Side & Non Sell-Side Analysis
B.A. Economics, University of California, Berkeley

Dr. Ganlin Xu, Ph.D.
Big Data & Data Mining
Ph.D. Mathematics, Carnegie Mellon University
B.S. Mathematics,
University of Science and Technology of China

Gillian Sandler
Healthcare Transformation
B.A. and Certificate for International Relations,
Wesleyan University
Executive Programs for Technology and
FutureMed, Singularity University at NASA/Ames

Flora J. Kim
Portfolio Management
B.S. Management Science, University of California, San Diego
B.S. Biochemistry and Cell Biology, University of California, San
Diego

Rishi Narang is the Founding Principal of T2AM, LLC and manages T2AM's investment activities. He is a leader in quantitative trading and a veteran in the hedge fund industry. Rishi began his career in 1996 as a Global Investment Strategist for Citibank Alternative Investment. In 1999, he co-founded Tradeworx, Inc., a quantitative hedge fund manager, and acted as its President until his departure in 2002. For the following three years, Rishi was the co-Portfolio Manager and a Managing Director at Santa Barbara Alpha Strategies, after which he founded T2AM, LLC in 2005. Rishi is the author of Inside the Black Box: A Simple Guide to Quantitative and High-Frequency Trading and holds a B.A. in Economics from the University of California at Berkeley.

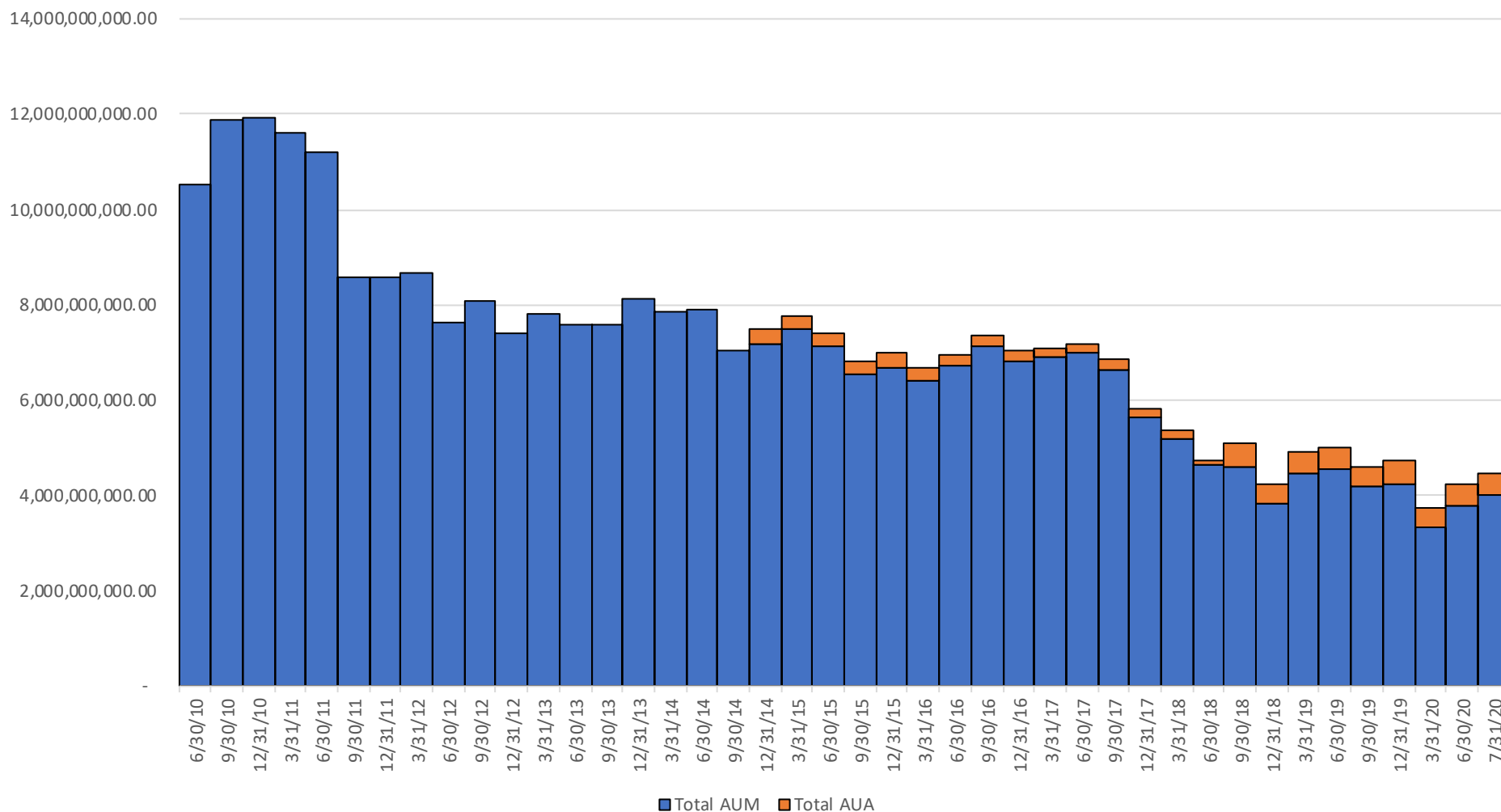
Dr. Ganlin Xu, Ph.D., joined McKinley Capital's Scientific Advisory Board in 2013. Dr. Xu has more than twenty (20) years of investment industry experience and is currently the Chief Technology Officer of GuidedChoice, Inc. Before joining Dr. Harry Markowitz at GuidedChoice in 2000, Dr. Xu worked with Dr. Markowitz in the global portfolio research group at Daiwa Securities. Dr. Xu led an effort at GuidedChoice to incorporate mean-variance efficient frontier into innovative products that provide investment advice and managed accounts to millions of investors. He has worked on various theoretical and practical aspects of portfolio management, and published papers in the SIAM Journal of Control and Optimizations and Annals of Applied Probability, among numerous others. Dr. Xu was co-recipient of the RIIA Practitioner Thought Leadership Award in 2012. In his years on the McKinley Capital Scientific Advisory Board, Dr. Xu has published articles with Dr. Markowitz and Dr. Guerard on domestic and global stock selection and the role of earnings forecasting in stock selection modeling.

Gillian Sandler has two decades of experience as a Chairman, CEO, board member, corporate strategist, advisor, investor, and entrepreneur in the healthcare space. She brings a wealth of knowledge in the Healthcare space as an active, experienced investor in healthcare transformation. Additionally, she has equity research experience from her time at JPMorgan. She was a lead investor and Board Member of Invicro (acquired by Konica Minolta in 2017), a leading imaging contract research organization and pioneer in Alzheimer's clinical trials. She is also a lead investor and Board Member of AZTherapies, Inc. Gillian serves on the board of the Columbia Zuckerman Mind Brain Behavior Institute and the Advisory Board for Arc Fusion, a think tank for the fusion of biosciences, informatics, and genomics. She also serves on the Board Council of the Johns Hopkins University Astronomy & Physics Department. Gillian received the first Pioneer Award for Changing Health Disparity awarded by U.S. Surgeon General Richard Carmona.

After 9 years with McKinley Capital culminating in the role of Director of Investments, Flora Kim transitioned to the Scientific Advisory Board in 2020. She is excited to work closely with Dr. Guerard and Dr. Markowitz and offer her portfolio management and healthcare sector experience to the Board's quantitative research agenda. Flora is the CFO for Windtalker, an Alaska technology start-up firm. Prior to her time at McKinley Capital, Flora worked as a healthcare and emerging markets analyst at Nicholas-Applegate, and she worked in the healthcare industry performing laboratory research.

APPENDIX – FIRM AUM/AUA

McKinley Capital Management, LLC - Firm AUM and AUA



Source: McKinley Capital Management, LLC data. Past performance is not indicative of future results.

DISCLOSURE

McKinley Capital Management, LLC ("McKinley Capital") is a registered investment adviser under the U.S. Investment Advisers Act of 1940. McKinley Capital is registered with the following Canadian provinces: the British Columbia Securities Commission; the Ontario Securities Commission; the Alberta Securities Commission; and the Quebec Financial Markets Authority.

The material provided herein has been prepared for an individual institutional client. All contents are specific to this client and will not apply in any other situation. Returns are absolute, were generated using McKinley Capital's proprietary growth investment methodology as described in McKinley Capital's Form ADV Part 2A, are unaudited, and may not replicate actual returns for any other client. No securities mentioned herein may be considered as an offer to purchase or sell a firm product or security. Any comment regarding any individual security does not imply McKinley ownership in any capacity and should not be construed as investment advice. With any investment, there is the potential for total loss. Investments are subject to immediate change without notice. Comments and general market related perspectives are for informational purposes only; were based on data available at the time of writing; are subject to change without notice; and may not be relied upon for individual investing purposes. McKinley Capital is not a tax advisor and does not provide tax advice related to portfolio holdings. Past performance is no guarantee of future results.

Trade date-based performance shown reflects the reinvestment of realized gains, dividends, interest and other earnings calculated using McKinley Capital's growth investment methodology. Portfolio performance is shown gross of management fees. Net of fees may also be provided. If not indicated, clients should realize that net returns will be lower and must be considered when determining absolute returns. McKinley informational products are derived from internal, proprietary, and/or service vendor technology sources and/or may have been extracted from other firm databases. Specific results from calculations and formulas may be rounded up. Future investment strategies may change with global economic conditions. Global market investing, including developed, emerging and frontier markets, also may carry additional risks and/or costs. These risks may include, but are not limited to, margin/mark-to-market cash calls, currency exchange, liquidity, unlimited asset exposure, and counter-party risk. McKinley Capital's proprietary investment process considers factors such as additional guidelines, restrictions, weightings, allocations, market conditions and other investment characteristics.

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Fees are billed monthly or quarterly, which produces a compounding effect on the total rate of return net of management fees. For example, a 1% annual fee deducted quarterly (0.25%) from an account with a ten-year annualized growth rate of 5.0% will produce a net result of 4.0%. Actual client fees vary. A fee schedule, available upon request, is described in the firm's Form ADV Part 2A. To receive a copy of the firm's ADV Part 2A, a complete list and description of McKinley Capital's composites and/or a copy of the GIPS® compliant presentation standards, please contact McKinley Capital at 1.907.563.4488 or visit the firm's website, www.mckinleycapital.com. All information is believed to be correct, but accuracy cannot be guaranteed.

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State Street Global Advisors

Mandate: Index Funds

Hired: 2009

SSGA World ex-USA IMI Fund – Defined Benefit

SSGA MSCI Emerging Markets – Defined Benefit

Global Equity Ex-US – Participant-Directed

Russell 3000 – Participant-Directed

S&P 500 – Participant-Directed

State Street Institutional Treasury Money Market – Participant-Directed

Firm Information	Investment Approach	Total Mandate
<p>State Street Global Advisors Trust Company is a wholly owned subsidiary of State Street Bank and Trust Company, which is in turn a wholly owned subsidiary of State Street Corporation. State Street Corporation is a publicly traded bank holding company whose shares are traded on the New York Stock Exchange under the symbol “STT.”</p> <p>As of June 30, 2020 State Street Global Advisors had \$1.83 trillion in AUM for global indexed assets.</p> <p>Key Executives: Cyrus Taraporevala, President & CEO Rick Lacaille, Global CIO Lynn Blake, CIO, Global Equity Beta Solutions Sonya Park, Managing Director & Account Executive</p>	<p>As an index manger, SSGA strives to deliver performance that closely aligns with the performance of a strategy’s respective index. SSGA generally fully replicates the index but when prudent will employ an optimization technique using historical data and correlations to create a portfolio that has the same risk and return characteristics of the respective index.</p>	<p>Assets Under Management As of 06/30/2020: \$3,706,931,444</p> <p>MSCI ACWI ex-US IMI Fund \$ 1,841,311,212 MSCI Emerging Markets \$ 620,339,623 World Equity Ex-US \$159,571,327 Russell 3000 \$267,175,922 S&P 500 \$705,973,807 State Street Institutional Treasury Money Market \$112,559,553</p>

Concerns: None

06/30/2020 Performance

	<u>Last Quarter</u>	<u>1-Year</u>	<u>3-Years Annualized</u>	<u>5-Years Annualized</u>	<u>6-Years Annualized</u>
SSGA World ex-USA IMI Fund (Net)	16.16%	-5.06%	N/A	N/A	N/A
MSCI World ex-USA IMI Index	16.96%	-4.74%	0.96%	2.30%	1.05%
SSGA MSCI Emerging Markets (Net)	18.32%	-3.22%	N/A	N/A	N/A
MSCI Emerging Markets Index	18.08%	-3.39%	1.90%	2.86%	1.49%

	<u>Last Quarter</u>	<u>1-Year</u>	<u>3-Years Annualized</u>	<u>5-Years Annualized</u>	<u>6-Years Annualized</u>
SSGA Money Market	0.03%	1.67%	1.89%	1.38%	1.18%
FTSE 3 Mo T-Bill	0.14%	1.56%	1.72%	1.15%	0.96%
SSGA S&P 500	20.52%	7.49%	10.72%	10.72%	10.16%
S&P 500	20.54%	7.51%	10.73%	10.73%	10.17%
SSGA Russell 3000	21.99%	6.45%	10.00%	10.02%	9.59%
Russell 3000 Index	22.03%	6.53%	10.04%	10.03%	9.57%
SSGA World Equity ex-US Fund	17.45%	-4.41%	1.41%	2.47%	1.26%
MSCI ACWI ex-US (Net)	16.12%	-4.80%	1.14%	2.26%	0.97%

ARMB

September 18, 2020

For Investment Professional Use Only.

Account Summary

ARMB

Investment Summary

As of June 30, 2020:

	Market Value (\$)
ARMB Defined Contribution Plans	1,132,721,056
ARMB Defined Benefit Plan	2,461,650,834
Total	3,594,371,891

Source: SSGA. * Includes dividends, interest and realized/unrealized gains and losses.

ARMB

Statement of Asset Changes

The following changes took place in the ARMB Defined Contribution Plans account for the period of July 1, 2019 to June 30, 2020:

	Starting Balance (\$) 07/01/2019	Contributions (\$)	Withdrawals (\$)	Appreciation/ (Depreciation)* (\$)	Ending Balance (\$) 06/30/2020
S&P 500 Flagship NL Series Fund Class A	633,991,865	327,300,901	(292,696,839)	37,377,880	705,973,807
Russell 3000 Index NL Series Fund Class A	141,489,267	203,266,675	(96,795,385)	19,215,365	267,175,922
State Street Global Equity ex-US Index NL Series Class A	178,909,578	45,614,372	(56,815,628)	(8,136,995)	159,571,327
Total	954,390,710	576,181,948	(446,307,852)	48,456,250	1,132,721,056

Source: SSGA. * Includes dividends, interest and realized/unrealized gains and losses.

ARMB

Statement of Asset Changes

The following changes took place in the ARMB Defined Benefit Plan account for the period of July 1, 2019 to June 30, 2020:

	Starting Balance (\$) 07/01/2019	Contributions (\$)	Withdrawals (\$)	Appreciation/ (Depreciation)* (\$)	Ending Balance (\$) 06/30/2020
MSCI World ex-USA IMI Strategy	997,043,499	1,135,658,045	(187,500,000)	(103,890,332)	1,841,311,212
State Street MSCI Emerging Markets Index NL Strategy	325,308,599	382,692,596	(79,000,000)	(8,661,572)	620,339,623
Total	1,322,352,098	1,518,350,641	(266,500,000)	(112,551,904)	2,461,650,835

Source: SSGA. * Includes dividends, interest and realized/unrealized gains and losses.

ARMB

Summary of Performance (expressed in USD)

Following are the gross and net returns for the ARMB Defined Contribution Plans portfolios versus the corresponding benchmarks as of June 30, 2020:

	One Month (%)	Three Months (%)	Year to Date (%)	Last 12 Months (%)	Three Years (%)	Five Years (%)	Ten Years (%)	Since Inception (%)
Russell 3000 Index NL Series Fund Class A								Oct/2008
Total Returns [Gross]	2.27	21.99	-3.53	6.46	10.01	10.04	13.74	10.95
Russell 3000® Index	2.29	22.03	-3.48	6.53	10.04	10.03	13.72	10.89
Difference	-0.02	-0.04	-0.05	-0.07	-0.03	0.01	0.02	0.06
Total Returns [Net]	2.27	21.99	-3.54	6.45	10.00	10.02	N/A	N/A
Russell 3000® Index	2.29	22.03	-3.48	6.53	10.04	10.03	N/A	N/A
Difference	-0.02	-0.04	-0.06	-0.08	-0.04	-0.01	N/A	N/A
S&P 500 Flagship NL Series Fund Class A								Mar/1996
Total Returns [Gross]	1.98	20.52	-3.10	7.49	10.72	10.72	13.99	8.76
S&P 500®	1.99	20.54	-3.08	7.51	10.73	10.72	13.99	8.74
Difference	-0.01	-0.02	-0.02	-0.02	-0.01	0.00	0.00	0.02
Total Returns [Net]	1.98	20.52	-3.11	7.48	10.71	10.71	N/A	N/A
S&P 500®	1.99	20.54	-3.08	7.51	10.73	10.72	N/A	N/A
Difference	-0.01	-0.02	-0.03	-0.03	-0.02	-0.01	N/A	N/A

Past performance is not a reliable indicator of future performance. Performance returns for periods of less than one year are not annualized. The performance figures contained herein are provided on a gross and net of fees basis. Gross of fees do not reflect and net of fees do reflect the deduction of advisory or other fees which could reduce the return. The performance includes the reinvestment of dividends and other corporate earnings and is calculated in USD

ARMB

Summary of Performance (expressed in USD)

Following are the gross and net returns for the ARMB Defined Contribution Plans portfolios versus the corresponding benchmarks as of June 30, 2020:

	One Month (%)	Three Months (%)	Year to Date (%)	Last 12 Months (%)	Three Years (%)	Five Years (%)	Ten Years (%)	Since Inception (%)
State Street Global Equity ex-USA Index NL SF CL A								Oct/2008
Total Returns [Gross]	4.85	17.47	-10.62	-4.35	1.47	2.58	5.23	4.35
MSCI ACWI ex-USA Index	4.52	16.12	-11.00	-4.80	1.13	2.26	4.97	4.01
Difference	0.33	1.35	0.38	0.45	0.34	0.32	0.26	0.34
Total Returns [Net]	4.85	17.45	-10.65	-4.41	1.41	2.47	N/A	N/A
MSCI ACWI ex-USA Index	4.52	16.12	-11.00	-4.80	1.13	2.26	N/A	N/A
Difference	0.33	1.33	0.35	0.39	0.28	0.21	N/A	N/A

Past performance is not a reliable indicator of future performance. Performance returns for periods of less than one year are not annualized. The performance figures contained herein are provided on a gross and net of fees basis. Gross of fees do not reflect and net of fees do reflect the deduction of advisory or other fees which could reduce the return. The performance includes the reinvestment of dividends and other corporate earnings and is calculated in USD

ARMB

Summary of Performance (expressed in USD)

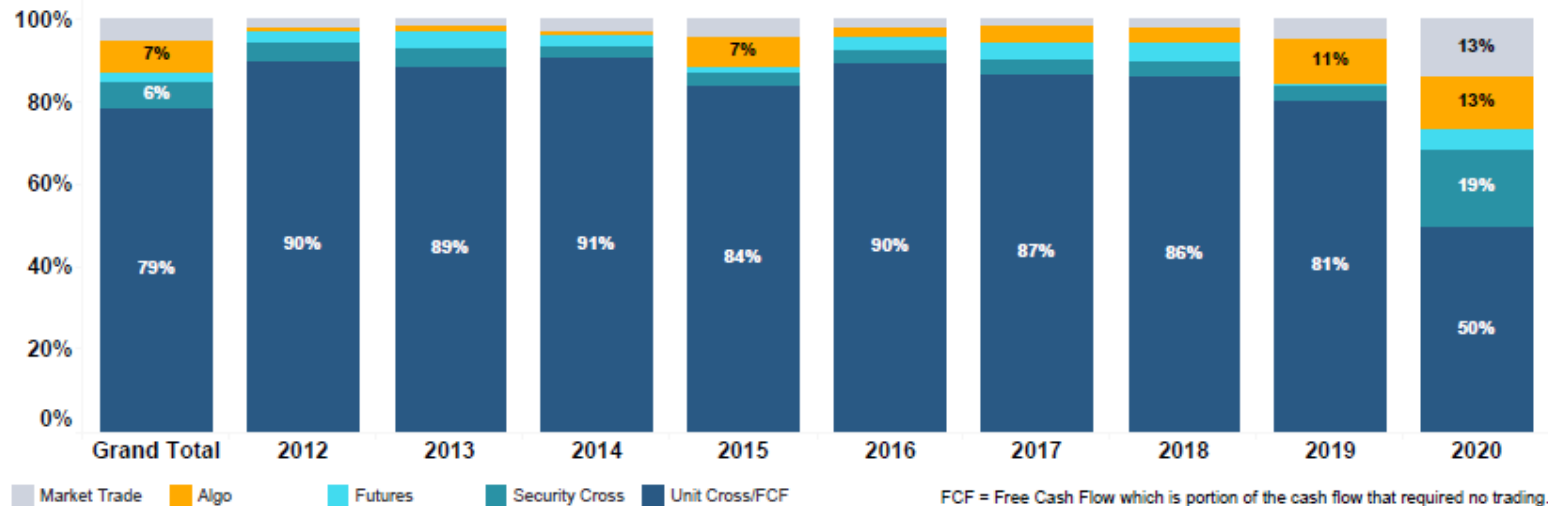
Following are the gross and net returns for the ARMB Defined Benefit Plan portfolios versus the corresponding benchmarks as of June 30, 2020:

	One Month (%)	Three Months (%)	Year to Date (%)	Last 12 Months (%)	Three Years (%)	Five Years (%)	Ten Years (%)	Since Inception (%)
MSCI World ex-USA IMI Strategy								Mar/2019
Total Returns [Gross]	3.19	16.17	-11.70	-5.14	N/A	N/A	N/A	-0.67
MSCI GIM WORLD ex-USA IMI	3.19	16.21	-11.68	-5.11	N/A	N/A	N/A	-0.64
Difference	0.00	-0.04	-0.02	-0.03	N/A	N/A	N/A	-0.03
Total Returns [Net]	3.19	16.17	-11.71	-5.16	N/A	N/A	N/A	-0.69
MSCI GIM WORLD ex-USA IMI	3.19	16.21	-11.68	-5.11	N/A	N/A	N/A	-0.64
Difference	0.00	-0.04	-0.03	-0.05	N/A	N/A	N/A	-0.05
State Street MSCI Emerging Markets Index NL Strategy								Mar/2019
Total Returns [Gross]	7.31	18.12	-9.71	-3.35	N/A	N/A	N/A	-1.56
MSCI Emerging Markets Index	7.35	18.08	-9.78	-3.39	N/A	N/A	N/A	-1.61
Difference	-0.04	0.04	0.07	0.04	N/A	N/A	N/A	0.05
Total Returns [Net]	7.31	18.11	-9.72	-3.37	N/A	N/A	N/A	-1.58
MSCI Emerging Markets Index	7.35	18.08	-9.78	-3.39	N/A	N/A	N/A	-1.61
Difference	-0.04	0.03	0.06	0.02	N/A	N/A	N/A	0.03

Past performance is not a reliable indicator of future performance. Performance returns for periods of less than one year are not annualized. The performance figures contained herein are provided on a gross and net of fees basis. Gross of fees do not reflect and net of fees do reflect the deduction of advisory or other fees which could reduce the return. The performance includes the reinvestment of dividends and other corporate earnings and is calculated in USD

Internal Liquidity and Trading Analytics, 01/2012 – 06/2020

% of Order Flow by Year



Trading Statistics by Strategy (USD)

	Internally Sourced%	Total Order Flow ('000)	Estimated Cost Savings	Estimated Open Market Rate (bps)
Grand Total	85%	4,958,056	7,358,931	16
MSCI EM (EMERGING MARKETS)	75%	1,167,533	3,082,530	35
MSCI ACWI EX USA	89%	598,327	1,498,624	28
S&P 500 INDEX	95%	1,804,922	1,030,614	6
RUSSELL 3000	94%	864,875	971,425	12
MSCI EAFE	56%	359,631	499,266	25
All Other Strategies	47%	162,767	276,473	35

Source: State Street Trading Data Mart capturing participant Record Keeping System (PRKS) flow data, Cash Portal SMA flows, and book of record trade execution data. "Total Order Flow" represents investor-initiated contributions and redemptions in and out of equity portfolios for the time period specified. Other trading such as portfolio rebalances and index changes are excluded. "% Internally Sourced" is the portion crossed through internal liquidity. "Open Market Cost" is an estimate that combines the expected explicit costs of commissions, taxes and fees with a mean estimate market impact cost.

The "Cost Savings" estimate is a representation of the estimated economic benefit of not incurring the "Open Market Cost"; these may be inaccurate and may change with time. [Estimated Open Market Rates: US large 6bps; US Mid 12 Bps, Global IMI 15 bps; All World 18 bps; Global Ex-US & US Small Cap 25 bps, All World Ex-US 28 bps, Emerging Markets & Global Ex-US small 35 bps, Emerging Small Cap 50 bps]. Availability of internal crossing at SSGA may be affected asset class, vehicle type, jurisdiction, or other factors.

Why State Street Global Advisors for Index, Smart Beta & ESG Investing

Core Focus Area and Key Strength

- 40 years history of delivering high quality, broad based index solutions
- >98%¹ of equity index funds have historically tracked within their tolerance bands

Industry Leader and Innovator

- ✓ Launched first US ETF
- ✓ In-house index creation
- ✓ Developing smart beta since 2006

Groundbreaking efforts in ESG research and integrated portfolio solutions

In-house proprietary ESG framework and screening tool

Experienced and Reliable Team

- 20 years average portfolio manager tenure
- Utilize a globally consistent investment management platform and processes
- Strategic focus on implementation and risk management
- Deep Research expertise with innovative heritage

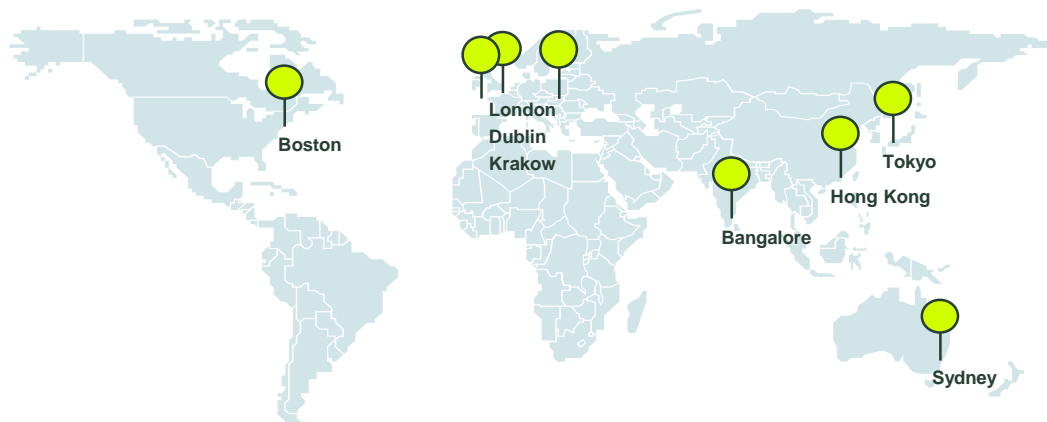
¹ Based on cumulative quarterly gross-of-fees returns for all GEBS managed pooled, and separate account for both 3 years and 5 years period ending December 31, 2019. Tracking error based on the difference between portfolio and benchmark cumulative returns.

State Street Global Equity Beta Solutions

70+ Portfolio Managers & Researchers

30+ Traders & Analysts

10+ Equity Strategists & Specialists



CIO	Exp Yrs
Lynn Blake, CFA	33

Team Highlights

Investment Team Members ¹	71
Average Experience Years	21
Number of CFA Charter Holders	24

Senior Leadership	Exp Yrs
Jennifer Bender ² , PhD (Research)	24
Benjamin Colton ² (Stewardship)	10
Nobuya Endo, CFA (Japan)	27
Mike Feehily, CFA (US)	28
Julian Harding (EMEA)	25
Mark Hui, CFA (Hong Kong)	22
Alex King, CFA (Australia)	18
Robert Walker ² (Stewardship)	18
Shayne White ² (Technology)	28

Portfolio Strategists ²	Exp Yrs
Heather Apperson	16
Carlo Funk	11
Ana Harris, CFA	16
Yvette Murphy	12
Thomas Reif	26
Tetsuro Shimura	34
Nathalie Wallace	25

As of June 30, 2020. ¹ Investment Team members include portfolio managers and researchers. ² Does not manage assets for the Global Equity Beta Solutions team. CFA® is a trademark of the CFA Institute.

Robust Research Guides Investment Decisions & Strategy Design

Global Head of Research

Jennifer Bender,* PhD



Global Team

Global Headcount **15**

Members with CFA **3**

Peer-reviewed articles & chapters authored **17**



Core Beta

Adding incremental value through risk-aware implementation and cost-reduction strategies, and strategic execution of index changes

Smart Beta

Blending empirical and theoretical research, and balancing intuition and complexity make us a leader in factor definition, combination, and implementation

Thematic & ESG

Identifying and capturing ESG-driven risks and opportunities and optimal portfolio construction across a spectrum of ESG exposures

Self-Indexed & Proprietary Beta

Developing innovative solutions while incorporating implementation insights into our range of cap-weighted, factor, and ESG indexes

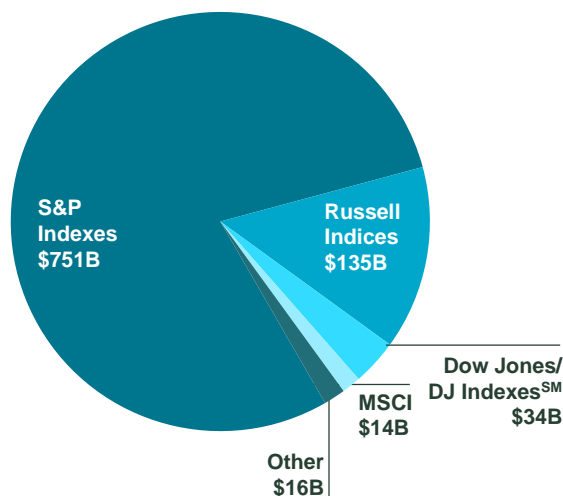
As of June 30, 2020. * Does not manage assets for the Global Equity Beta Solutions team.

A Leading Manager of Global Indexed Assets

Total Global Equity Beta Solutions Assets Under Management:
\$1.83 Trillion (USD) as of June 30, 2020

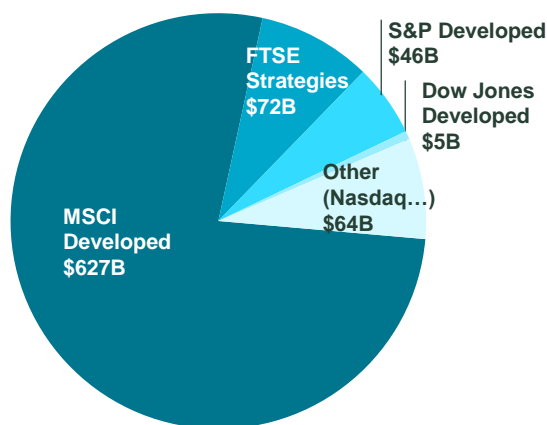
US Index AUM

\$949B



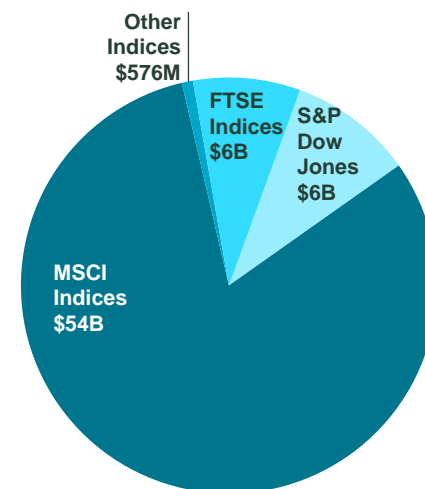
International & Global Equity AUM

\$814B



Emerging Markets Equity AUM

\$67B



Source: State Street Global Advisors. As of June 30, 2020.

Exclusive of Emerging Markets Equities invested in other MSCI-benchmarked strategies such as MSCI ACWI and MSCI ACWI ex-US.

Index Equity Management Techniques

Benchmark returns can be achieved through...

Replication

Hold all or the majority of securities in the index at approximately market cap weight

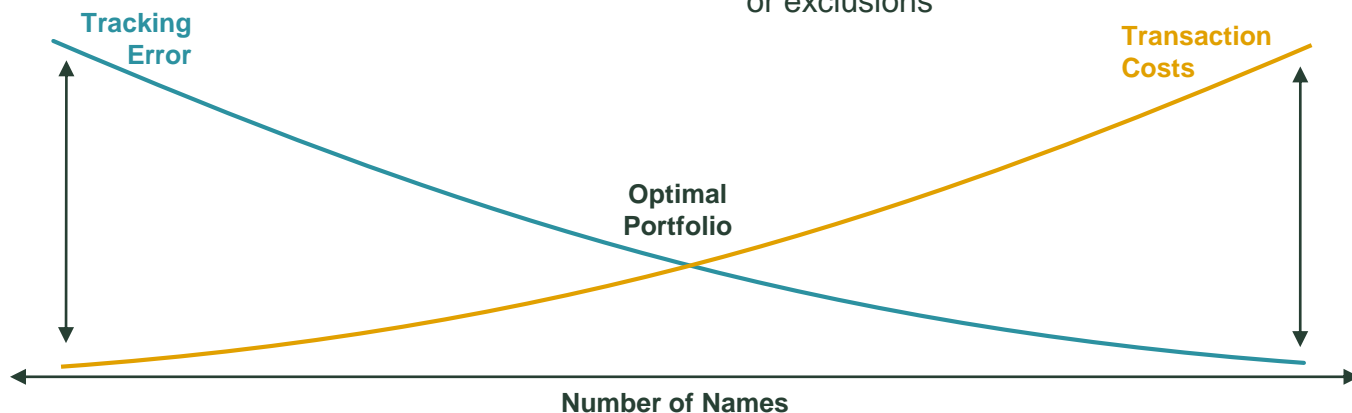
Typically applied to reasonable sized portfolios with minimal liquidity or accessibility constraints (US large cap, Developed markets)

Optimization

Construct a portfolio with the same risk & return characteristics of the index but with a smaller subset of securities

Typically applied to liquidity constrained portfolios (small cap, Emerging markets) or smaller sized portfolios tracking a broader index

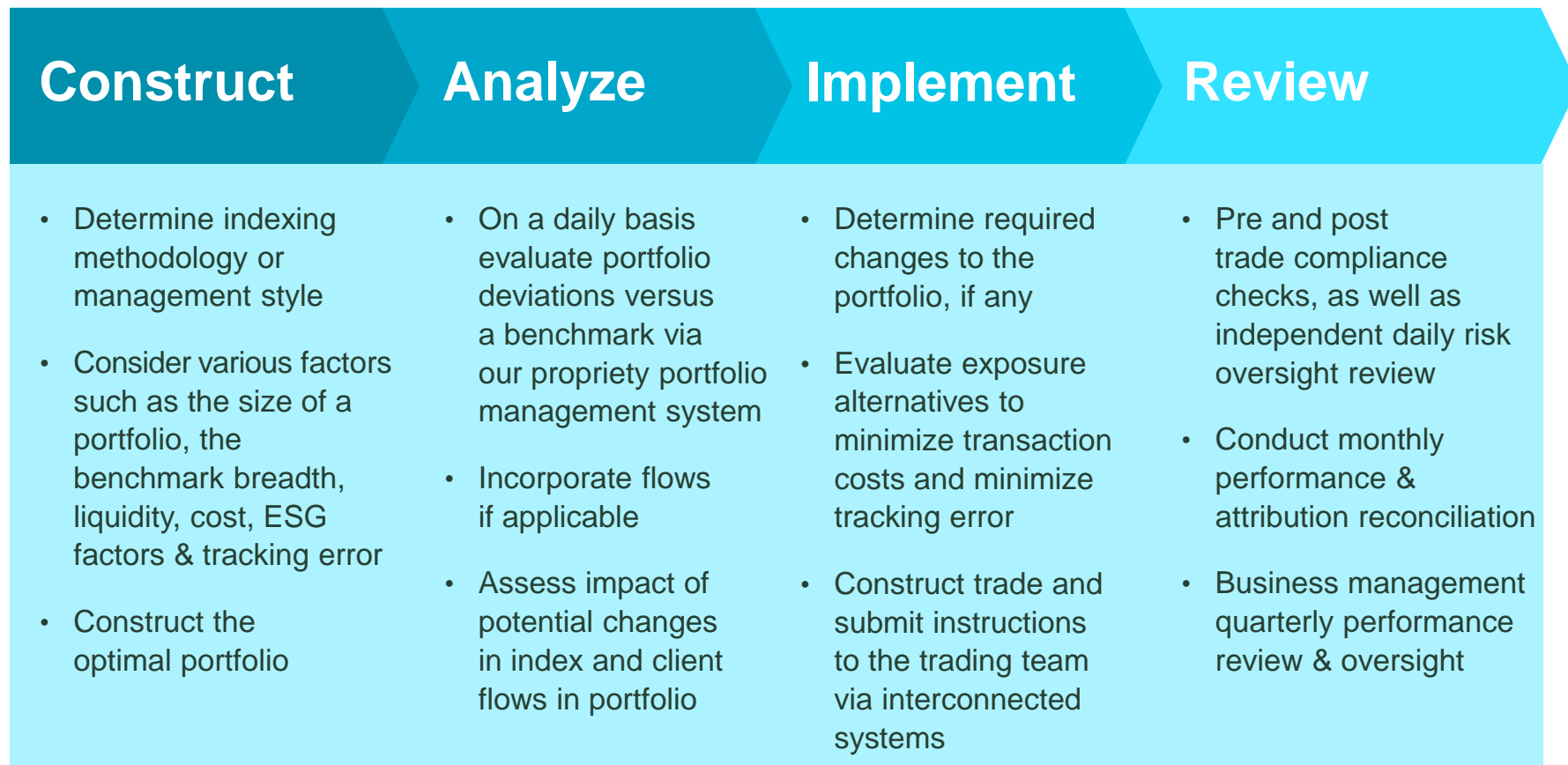
Also applicable to broad portfolios with restrictions or exclusions



The information contained above is for illustrative purposes only.

Investment Process

A tried and tested process marrying human insight and technology



Source: State Street Global Advisors.

Portfolio Review for MSCI ACWI ex-USA Index Strategy

MSCI Index Updates

May 2020 Semi-Annual Index Review

- There were less additions and more deletions this time, compared to the last Semi Annual Index Review
- Developed Market turnover was 2x relative to May 2019

Annual Market Classification Review

- MSCI will reclassify the **MSCI Kuwait Index** to **EM** status as part of the November 2020 Semi-Annual Index Review
- If the **MSCI Peru Index** falls short of the required three constituents for the **EM**, MSCI will immediately launch a consultation to potentially reclassify the MSCI Peru Index from **EM** status to **Frontier Markets** status
- MSCI is currently consulting on the potential reclassification of the **MSCI Iceland Index** to **Frontier Markets** status

Other Index Updates

- Following the imposition of capital controls announced by Argentinian authorities, MSCI opens a consultation on the replicability of the current **MSCI Argentina Index** and the appropriateness of its market classification in **EM**. The results of the consultation will be communicated as part of the MSCI 2020 June Market Classification Review
- State-owned Saudi Aramco was included in the MSCI EM index after its largest IPO of all time, valuing the company at \$1.7 trillion. Its currently 0.15% in MSCI EM due to the small fraction of its market cap is publicly floated.

As of July 16, 2020

Source: State Street Global Advisors.

The MSCI Indices are trademarks of MSCI, Inc.

Please go to the MSCI website for more information about the Indexes.

What Does the Portfolio Look Like?

Seeks to deliver risk characteristics of the benchmark

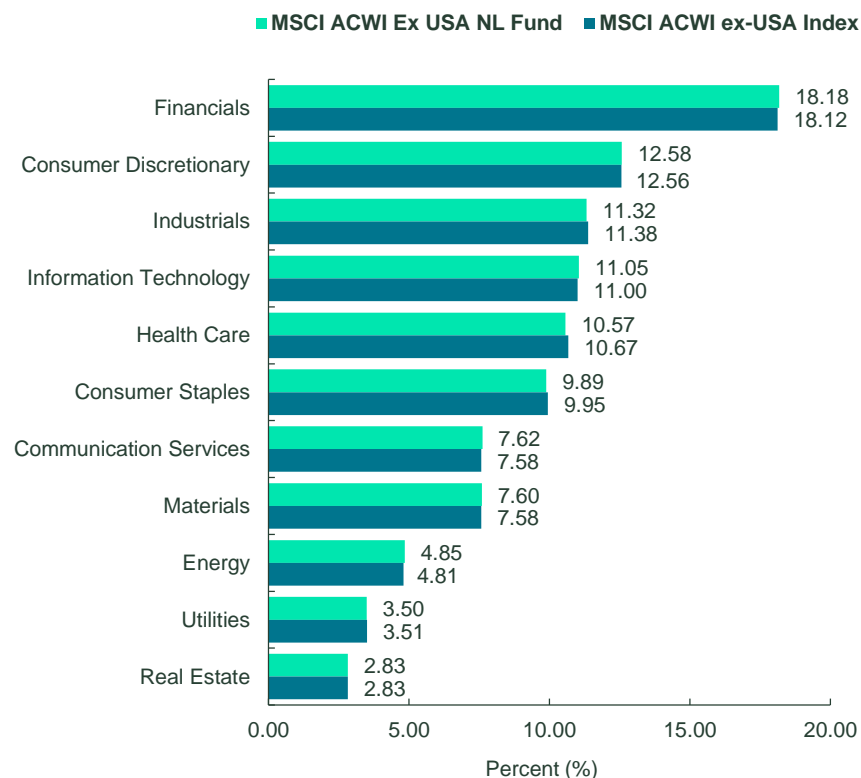
Characteristics

	Portfolio	Benchmark*
Value Indicators		
Price/Earnings Ratio (Forward 12 Months)	17.77	17.66
Price/Book Ratio	1.57	1.56
Price/Cash Flow	7.61	7.54
Annual Dividend Yield (Trailing 12 Months)	2.75	2.78
Growth Indicators		
Estimated 3–5yr EPS Growth	9.81	9.80
Return on Equity	14.73	14.77
Risk Indicators		
Beta (Trailing 36 Months)	1.00	—
Standard Deviation (Annualized 36 Months)	15.67	15.72
Structures		
Composite AUM (\$M)	19,789.93	—
Weighted Average Market Cap (\$B)	64.23	63.32
Index Historical Turnover (5 Year Average)		5.29
Total Number of Holdings	2425	2368

Top 10 Holdings

	Portfolio Weight (%)	Benchmark Weight (%)	Relative Weight* (%)
Alibaba Group Holding-Sp ADR	2.03	2.01	0.02
Tencent Holdings Ltd	1.85	1.83	0.02
Nestle SA-Reg	1.60	1.63	-0.03
Taiwan Semiconductor Manufac	1.32	1.29	0.03
Roche Holding AG-Genusschein	1.19	1.21	-0.02
Samsung Electronics Co Ltd	1.06	1.04	0.02
Novartis AG-Reg	0.91	0.92	-0.01
ASML Holding NV	0.79	0.77	0.02
SAP SE	0.70	0.72	-0.02
AstraZeneca PLC	0.66	0.68	-0.02

As of June 30, 2020. Sources: FactSet, GICS®, MSCI, Inc., Thomson Reuters Worldscope. The Supplemental Information above is that of a single representative account within the Composite, which is subject to change. The representative account was chosen because it has no material restrictions and fairly represents the investment style of the Strategy. The Supplemental Information should not be deemed to be reflective of (and could differ from) the overall Composite or any other single account within the Composite. This information should not be considered a recommendation to invest in a particular sector or to buy or sell any security shown. It is not known whether the sectors or securities shown will be profitable in the future. The specific securities listed do not represent all of the securities purchased, sold, or recommended for advisory clients. You should not assume that investments in the securities identified and discussed were or will be profitable. * Benchmark is MSCI ACWI ex-USA Index.



MSCI ACWI ex-USA Index Strategy

Country Weights

Developed Markets Country Weights

Region/Country	Portfolio (%)	Benchmark* (%)	Difference (%)
Japan	16.45	16.47	-0.02
United Kingdom	9.12	9.14	-0.02
France	7.05	7.07	-0.02
Canada	6.60	6.49	0.11
Switzerland	6.68	6.68	0.00
Germany	6.00	6.00	0.00
Australia	4.36	4.36	0.00
Netherlands	2.80	2.80	0.00
Hong Kong	2.22	2.22	0.00
Spain	1.56	1.56	0.00
Sweden	1.98	1.98	0.00
Italy	1.48	1.48	0.00
Denmark	1.52	1.52	0.00
Singapore	0.72	0.72	0.00
Belgium	0.59	0.60	-0.01
Finland	0.65	0.66	-0.01
Norway	0.33	0.34	-0.01
Israel	0.40	0.41	-0.01
Ireland	0.41	0.42	-0.01
New Zealand	0.21	0.21	0.00
Austria	0.11	0.11	0.00
Portugal	0.11	0.11	0.00

Emerging Markets Country Weights

Region/Country	Portfolio (%)	Benchmark* (%)	Difference (%)
China	11.72	11.73	-0.01
Korea	3.31	3.33	-0.02
Taiwan	3.52	3.52	0.00
India	2.30	2.30	0.00
Brazil	1.47	1.47	0.00
South Africa	1.08	1.08	0.00
Russian Federation	0.92	0.93	-0.01
Thailand	0.65	0.65	0.00
Saudi Arabia	0.76	0.76	0.00
Mexico	0.50	0.50	0.00
Malaysia	0.51	0.51	0.00
Indonesia	0.42	0.42	0.00
Philippines	0.24	0.24	0.00
Poland	0.21	0.20	0.01
Qatar	0.24	0.24	0.00
Chile	0.17	0.17	0.00
United Arab Emirates	0.15	0.15	0.00
Turkey	0.13	0.13	0.00
Colombia	0.05	0.05	0.00
Peru	0.07	0.07	0.00
Greece	0.04	0.04	0.00
Hungary	0.07	0.06	0.01
Argentina	0.04	0.04	0.00
Czech Republic	0.04	0.03	0.01
Egypt	0.04	0.03	0.01
Pakistan	0.01	0.01	0.00

As of June 30, 2020. Sources: FactSet, GICS®, MSCI, Inc., Thomson Reuters Worldscope. The Supplemental Information above is that of a single representative account within the Composite, which is subject to change. The representative account was chosen because it has no material restrictions and fairly represents the investment style of the Strategy. The Supplemental Information should not be deemed to be reflective of (and could differ from) the overall Composite or any other single account within the Composite. This information should not be considered a recommendation to invest in a particular sector or to buy or sell any security shown. It is not known whether the sectors or securities shown will be profitable in the future. * Benchmark: MSCI ACWI ex USA Index.

Portfolio Review for S&P 500[®] Index Strategy

What Does the Portfolio Look Like?

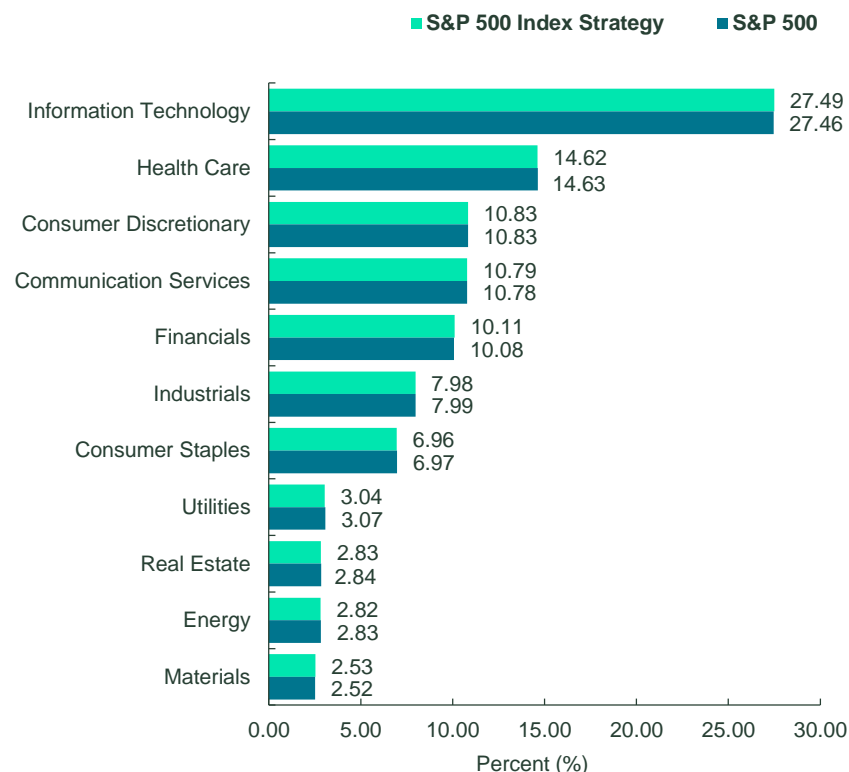
Seeks to deliver risk characteristics of the benchmark

Characteristics

	Portfolio	Benchmark*
Value Indicators		
Price/Earnings Ratio (Forward 12 Months)	23.16	23.16
Price/Book Ratio	3.27	3.27
Price/Cash Flow	13.02	13.02
Annual Dividend Yield (Trailing 12 Months)	1.85	1.85
Growth Indicators		
Estimated 3–5yr EPS Growth	10.54	10.54
Return on Equity	26.80	26.77
Risk Indicators		
Beta (Trailing 36 Months)	1.00	—
Standard Deviation (Annualized 36 Months)	16.71	16.71
Structures		
Composite AUM (\$M)	64,565.67	—
Weighted Average Market Cap (\$B)	388.39	387.95
Index Historical Turnover (5 Year Average)	—	4.72
Total Number of Holdings	505	505

Top 10 Holdings

	Portfolio Weight (%)	Benchmark Weight (%)	Relative Weight* (%)
Microsoft Corp	6.03	6.02	0.01
Apple Inc	5.81	5.8	0.01
Amazon.Com Inc	4.51	4.51	0.00
Facebook Inc-Class A	2.13	2.13	0.00
Alphabet Inc-Cl A	1.66	1.66	0.00
Alphabet Inc-Cl C	1.61	1.61	0.00
Johnson & Johnson	1.45	1.45	0.00
Berkshire Hathaway Inc-Cl B	1.36	1.35	0.01
Visa Inc	1.27	1.27	0.00
Procter & Gamble Co/The	1.16	1.15	0.01



As of June 30, 2020. Sources: FactSet, State Street Global Advisors. Past performance is not a guarantee of future results. The Supplemental Information above (except for beta, standard deviation, and Composite AUM (USD), is that of a single representative account within the Composite, which is subject to change. The representative account was chosen because it has no material restrictions and fairly represents the investment style of the Strategy. The Supplemental Information should not be deemed to be reflective of (and could differ from) the overall Composite or any other single account within the Composite. This information should not be considered a recommendation to invest in a particular sector or to buy or sell any security shown. It is not known whether the sectors or securities shown will be profitable in the future. The specific securities listed do not represent all of the securities purchased, sold, or recommended for advisory clients. * Benchmark is the S&P 500 Index.

Portfolio Review for MSCI World ex-USA IMI Index Strategy

What Does the Portfolio Look Like?

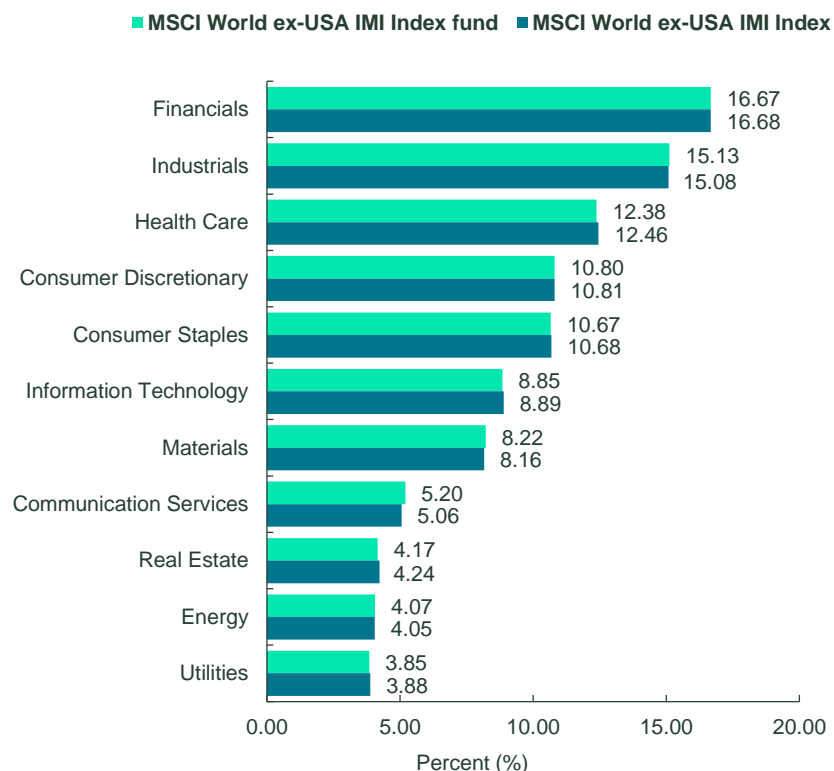
Seeks to deliver risk characteristics of the benchmark

Characteristics

	Portfolio	Benchmark*
Value Indicators		
Price/Earnings Ratio (Forward 12 Months)	18.83	18.85
Price/Book Ratio	1.47	1.47
Price/Cash Flow	7.34	7.36
Annual Dividend Yield (Trailing 12 Months)	2.79	2.79
Growth Indicators		
Estimated 3–5yr EPS Growth	8.46	8.55
Return on Equity	14.12	14.20
Risk Indicators		
Beta (Trailing 36 Months)	1.00	—
Standard Deviation (Annualized 36 Months)	15.65	15.66
Structures		
Composite AUM (\$M)	8,687.20	—
Weighted Average Market Cap (\$B)	45.05	44.92
Historical Turnover (5 Year Average)	—	4.41
Total Number of Holdings	3000	3496

Top 10 Holdings

	Portfolio Weight (%)	Benchmark Weight (%)	Relative Weight* (%)
Nestle Sa-Reg	1.98	1.97	0.01
Roche Holding Ag-Genusschein	1.45	1.47	-0.02
Novartis Ag-Reg	1.12	1.13	-0.01
Asml Holding Nv	0.94	0.92	0.02
Sap Se	0.87	0.86	0.01
Astrazeneca Plc	0.82	0.82	0.00
Toyota Motor Corp	0.79	0.80	-0.01
Lvmh Moet Hennessy Louis Vui	0.73	0.73	0.00
Novo Nordisk A/S-B	0.68	0.70	-0.02
Sanofi	0.68	0.70	-0.02



As of June 30, 2020. Sources: FactSet, GICS®, MSCI, Inc., Thomson Reuters Worldscope. The Supplemental Information above is that of a single representative account within the Composite, which is subject to change. The representative account was chosen because it has no material restrictions and fairly represents the investment style of the Strategy. The Supplemental Information should not be deemed to be reflective of (and could differ from) the overall Composite or any other single account within the Composite. This information should not be considered a recommendation to invest in a particular sector or to buy or sell any security shown. It is not known whether the sectors or securities shown will be profitable in the future. The specific securities listed do not represent all of the securities purchased, sold, or recommended for advisory clients. You should not assume that investments in the securities identified and discussed were or will be profitable. * Benchmark is MSCI World ex-US IMI Index.

MSCI World ex-USA IMI Index Strategy

Country Weights

Country	Portfolio Weight (%)	Benchmark Weight* (%)	Difference (%)
EMEA	56.32	56.34	-0.02
United Kingdom	13.11	13.13	-0.02
France	8.94	8.90	0.04
Germany	8.07	7.98	0.09
Switzerland	8.70	8.75	-0.05
Netherlands	3.67	3.66	0.01
Sweden	3.26	3.24	0.02
Spain	2.13	2.13	0.00
Italy	2.20	2.18	0.02
Denmark	2.06	2.05	0.01
Finland	0.95	0.97	-0.02
Belgium	0.97	0.97	0.00
Norway	0.65	0.68	-0.03
Israel	0.67	0.74	-0.07
Ireland	0.54	0.56	-0.02
Austria	0.24	0.23	0.01
Portugal	0.16	0.17	-0.01

Country	Portfolio Weight (%)	Benchmark Weight* (%)	Difference (%)
North America	9.05	8.99	0.06
Canada	9.05	8.99	0.06
Pacific Rim	34.63	34.67	-0.04
Japan	23.85	23.86	-0.01
Australia	6.28	6.33	-0.05
Hong Kong	3.05	2.97	0.08
Singapore	1.09	1.13	-0.04
New Zealand	0.36	0.38	-0.02
Total Portfolio	100.00	100.00	0.00

As of June 30, 2020. Sources: FactSet, GICS®, MSCI, Inc., Thomson Reuters Worldscope. The Supplemental Information above is that of a single representative account within the Composite, which is subject to change. The representative account was chosen because it has no material restrictions and fairly represents the investment style of the Strategy. The Supplemental Information should not be deemed to be reflective of (and could differ from) the overall Composite or any other single account within the Composite.

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Portfolio Review for MSCI Emerging Markets Index Strategy

What Does the Portfolio Look Like?

Seeks to deliver risk characteristics of the benchmark

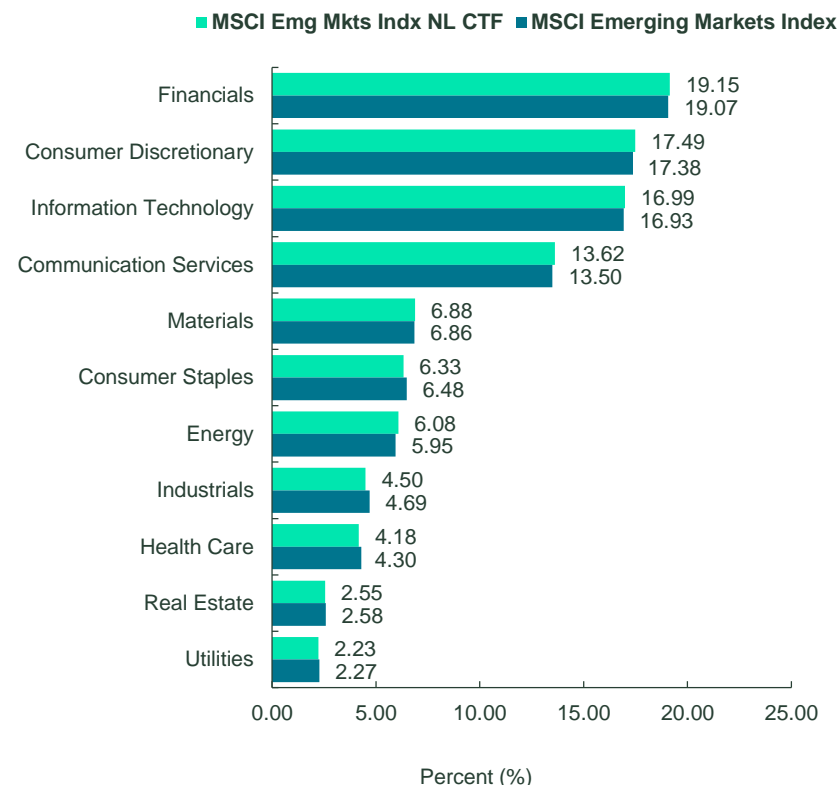
Characteristics

	Portfolio	Benchmark *
Value Indicators		
Price/Earnings Ratio (Forward 12 Months)	15.25	15.08
Price/Book Ratio	1.66	1.63
Price/Cash Flow	8.19	7.98
Annual Dividend Yield (Trailing 12 Months)	2.49	2.58
Growth Indicators		
Estimated 3–5yr EPS Growth	13.88	13.80
Return on Equity	14.42	14.51
Risk Indicators		
Beta (Trailing 36 Months)	1.00	—
Standard Deviation (Annualized 36 Months)	18.23	18.26
Structures		
Composite AUM (\$M)	18,611.66	—
Weighted Average Market Cap (\$B)	96.68	92.06
Historical Turnover (5 Year Average)	—	9.17
Total Number of Holdings	1,428	1,383

Top 10 Holdings

	Portfolio Weight (%)	Benchmark Weight (%)	Relative Weight* (%)
Alibaba Group Holding-Sp ADR	7.07	6.99	0.08
Tencent Holdings Ltd	6.43	6.22	0.21
Taiwan Semiconductor Manufac	4.58	4.51	0.07
Samsung Electronics Co Ltd	3.70	3.61	0.09
Naspers Ltd-N Shs	1.42	1.38	0.04
Meituan Dianping-Class B	1.37	1.36	0.01
China Construction Bank-H	1.36	1.34	0.02
Reliance Industries Ltd	1.13	1.12	0.01
Ping An Insurance Group Co-H	1.04	1.03	0.01
Jd.Com Inc-ADR	0.89	0.88	0.01

As of June 30, 2020. Sources: FactSet, GICS®, MSCI, Inc., Thomson Reuters Worldscope. The Supplemental Information above is that of a single representative account within the Composite, which is subject to change. The representative account was chosen because it has no material restrictions and fairly represents the investment style of the Strategy. The Supplemental Information should not be deemed to be reflective of (and could differ from) the overall Composite or any other single account within the Composite. This information should not be considered a recommendation to invest in a particular sector or to buy or sell any security shown. It is not known whether the sectors or securities shown will be profitable in the future. The specific securities listed do not represent all of the securities purchased, sold, or recommended for advisory clients. You should not assume that investments in the securities identified and discussed were or will be profitable. * Benchmark is MSCI Emerging Markets Index



MSCI Emerging Markets Index Strategy Country Weights

Region/Country	Portfolio (%)	Benchmark* (%)	Difference (%)
Latin America	8.02	8.02	0.00
Brazil	5.14	5.14	0.00
Mexico	1.73	1.73	0.00
Chile	0.58	0.58	0.00
Colombia	0.19	0.19	0.00
Peru	0.25	0.25	0.00
Argentina	0.13	0.13	0.00
Asia/Pac. Rim	79.18	79.22	-0.04
China	40.92	40.95	-0.03
Korea	11.59	11.61	-0.02
Taiwan	12.28	12.28	0.00
India	8.01	8.02	-0.01
Thailand	2.26	2.27	-0.01
Malaysia	1.77	1.76	0.01
Indonesia	1.49	1.47	0.02
Philippines	0.84	0.84	0.00
Pakistan	0.02	0.02	0.00

Region/Country	Portfolio (%)	Benchmark* (%)	Difference (%)
Europe	4.90	4.87	0.03
Russia	3.23	3.23	0.00
Poland	0.72	0.71	0.01
Turkey	0.45	0.45	0.00
Greece	0.14	0.14	0.00
Hungary	0.24	0.23	0.01
Czech Republic	0.12	0.11	0.01
Africa/Middle East	7.88	7.89	-0.01
South Africa	3.77	3.76	0.01
Qatar	0.82	0.83	-0.01
United Arab Emirates	0.52	0.52	0.00
Saudi Arabia	2.65	2.66	-0.01
Egypt	0.12	0.12	0.00

As of June 30, 2020. Sources: FactSet, GICS®, MSCI, Inc., Thomson Reuters Worldscope. The Supplemental Information above is that of a single representative account within the Composite, which is subject to change. The representative account was chosen because it has no material restrictions and fairly represents the investment style of the Strategy. The Supplemental Information should not be deemed to be reflective of (and could differ from) the overall Composite or any other single account within the Composite.

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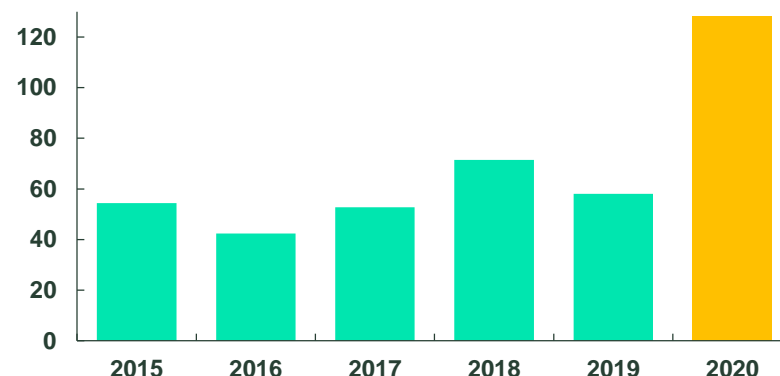
Portfolio Review for Russell 3000® Index Strategy

2020 FTSE/Russell Reconstitution Overview

Summary

- There were no updates to index methodology and rules this year
- Trading volume more than doubled 2019's highlighting the higher turnover of this year's rebalance event
- Due to higher number of Russell 1000 Index(R1) additions and expected migrations between R1 and Russell 2000 Index(R2), turnover was higher than previous years across core and style indices for both large and small caps,

Net Trading Volume on Recon day (in \$Billions)



Breakdown

- **Sectors** – Size migrations from small to large cap are driven by outperforming stocks in Health Care, Technology and Industrials names; Underperforming Financials, Energy and Consumer Discretionary Stocks lead the move from large to small cap
- **Size** – Total market cap of R1 increased 5.1% while R2 shrank 13.7% since last reconstitution*; Breakpoint between large and small cap decreased 16.4% to \$3.0 billion
- **Style** – Growth outperformed Value across large and small cap; As a result of that there was a large shift from growth to value. Technology remains the largest sector in R1 growth and Health Care remains the largest sector in R2 growth; Financials continues to be the largest sector in all value indices

Source: Russell, Barclays, State Street Global Advisors. As of July 15, 2020. Russell Investment Group is the source and owner of the trademarks, service marks and copyrights related to the Russell Indexes. Russell Indices are trademarks of Russell Investment Group.

*Total Market cap data shown are as of June 30, 2020

Russell Reconstitution Trade Recap

State Street Global Advisors' US Russell Assets Under Management: \$130B

- Turnover due to rebalancing for the annual Russell Reconstitution totaled **\$57 billion** for the combined years 2017–2020
- Over **\$29 billion was crossed at low cost**. This represents an average crossing rate for the period of **52%**.
- Estimated costs to trade a full slice of US large cap stocks in the open market is 10 bps while it costs about 20 bps for US mid/small cap stocks
- **Savings** passed on to our clients are estimated to be approximately **\$34 million¹** from 2017-2020

Source: State Street Global Advisors. All currency figures in USD. Updated annually. As of June 30, 2020. ¹Savings are calculated by multiplying the estimated market trading costs (ranging from 5 to 20 basis points—depending on liquidity type and region) by the relevant trade volume amount. US large cap stocks account for about 70% of the noted savings.

What Does the Portfolio Look Like?

Seeks to deliver risk characteristics of the benchmark

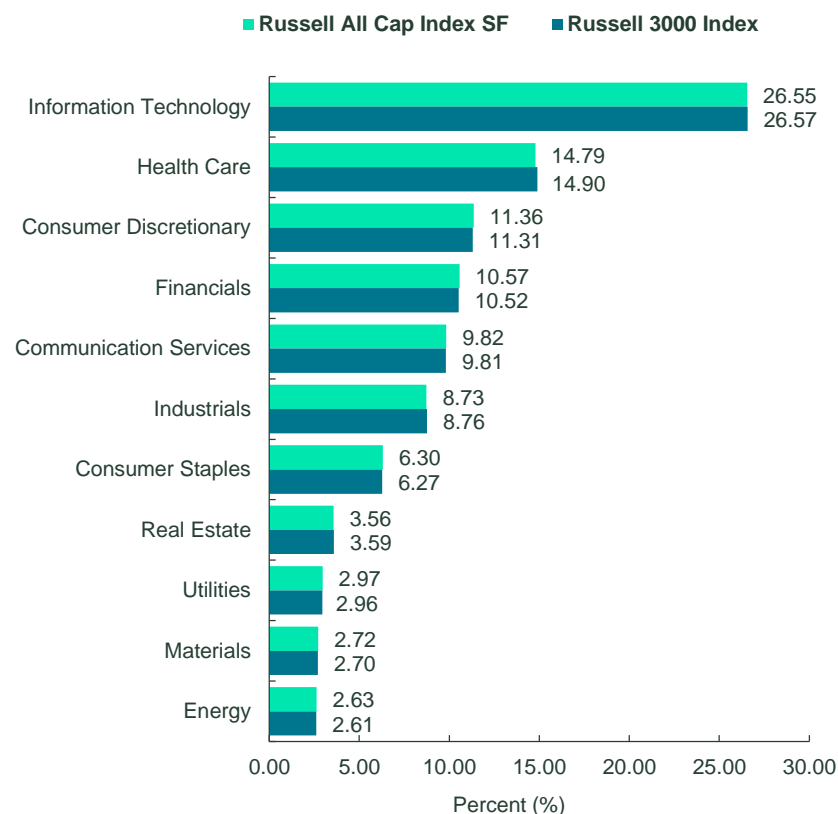
Characteristics

	Portfolio	Benchmark*
Value Indicators		
Price/Earnings Ratio (Forward 12 Months)	23.22	23.31
Price/Book Ratio	3.04	3.04
Price/Cash Flow	12.45	12.46
Annual Dividend Yield (Trailing 12 Months)	1.74	1.73
Growth Indicators		
Estimated 3–5yr EPS Growth	11.29	11.31
Return on Equity	22.21	22.38
Risk Indicators		
Beta (Trailing 36 Months)	1.00	—
Standard Deviation (Annualized 36 Months)	17.44	17.45
Structures		
Composite AUM (\$M)	11,258.82	—
Weighted Average Market Cap (\$B)	328.70	328.69
Historical Turnover (5 Year Average)	—	2.34
Total Number of Holdings	2,676	3,008

Top 10 Holdings

	Portfolio Weight (%)	Benchmark Weight (%)	Relative Weight* (%)
Microsoft Corp	5.00	5.00	0.00
Apple Inc	4.89	4.89	0.00
Amazon.Com Inc	3.84	3.84	0.00
Facebook Inc-Class A	1.79	1.79	0.00
Alphabet Inc-Cl A	1.40	1.40	0.00
Alphabet Inc-Cl C	1.37	1.37	0.00
Johnson & Johnson	1.22	1.22	0.00
Berkshire Hathaway Inc-Cl B	1.14	1.14	0.00
Visa Inc	1.07	1.07	0.00
Procter & Gamble Co/The	0.95	0.96	-0.01

As of June 30, 2020. Sources: FactSet, State Street Global Advisors. Past performance is not a guarantee of future results. The Supplemental Information above (except for beta, standard deviation, and Composite AUM (USD), is that of a single representative account within the Composite, which is subject to change. The representative account was chosen because it has no material restrictions and fairly represents the investment style of the Strategy. The Supplemental Information should not be deemed to be reflective of (and could differ from) the overall Composite or any other single account within the Composite. This information should not be considered a recommendation to invest in a particular sector or to buy or sell any security shown. It is not known whether the sectors or securities shown will be profitable in the future. The specific securities listed do not represent all of the securities purchased, sold, or recommended for advisory clients. * Benchmark is the Russell 3000 Index



Appendix A: GIPS® Presentation

GIPS® is a trademark owned by CFA Institute.

GIPS® Report: MSCI ACWI ex-USA Index Composite (As of December 31, 2019)

Gross Returns

Period	Quarter	YTD	1 Year	3 Years	5 Years	10 Years	Inception Aug 1998
MSCI ACWI ex USA Index Composite	8.98	21.86	21.86	10.17	5.78	5.21	N/A
MSCI ACWI ex USA Index	8.92	21.51	21.51	9.87	5.51	4.97	N/A

Year	MSCI ACWI ex-USA Index Composite	MSCI ACWI ex-USA Index
2019	21.86	21.51
2018	-14.00	-14.20
2017	27.57	27.19
2016	4.77	4.50
2015	-5.43	-5.66
2014	-3.61	-3.87
2013	15.56	15.29
2012	17.08	16.83
2011	-13.52	-13.71
2010	11.25	11.15

Year	No. of Portfolios at Period End	Composite Dispersion	3 Yr Annualized Standard Deviation — Composite	3 Yr Annualized Standard Deviation — Benchmark	Total Assets at End of Period (USD)	% of Firm's Assets	Total Firm Assets (USD mil)
2019	8	0.21	11.34	11.34	23,593,749,784	0.77	3,052,585
2018	8	0.11	11.39	11.38	19,923,944,858	0.81	2,457,404
2017	10	0.19	11.85	11.87	25,720,545,594	0.95	2,714,705
2016	11	0.15	12.50	12.51	19,573,706,925	0.85	2,291,833
2015	11	0.13	12.11	12.13	18,051,665,867	0.82	2,188,091
2014	11	0.10	12.77	12.81	19,071,248,380	0.80	2,383,493
2013	10	0.13	16.18	16.23	19,403,464,628	0.85	2,279,237
2012	11	0.15	19.23	19.26	11,708,184,891	0.58	2,023,842
2011	11	0.10	22.70	22.71	10,686,366,607	0.60	1,768,142
2010	11	0.14	27.28	27.29	10,017,316,655	0.66	1,518,977

gP-ACWI.

* 5 portfolios or less.

** Less than 3 years.

Quarterly and YTD returns are not annualized.

Investment Objective: The Strategy seeks an investment return that approximates as closely as practicable, before expenses, the performance of its benchmark index (the "Index") over the long term.

Investment Strategy: The Strategy is managed using an "indexing" investment approach, by which SSGA attempts to approximate, before expenses, the performance of the Index over the long term. SSGA will typically attempt to invest in the equity securities comprising the Index, in approximately the same proportions as they are represented in the Index. Equity securities may include common stocks, preferred stocks, depository receipts, or other securities convertible into common stock. Equity securities held by the Strategy may be denominated in foreign currencies and may be held outside the United States. In some cases, it may not be possible or practicable to purchase all of the securities comprising the Index, or to hold them in the same weightings as they represent in the Index. In those circumstances, SSGA may employ a sampling or optimization technique to construct the portfolio in question. SSGA may also utilize other pooled investment vehicles, including those managed by SSGA and its affiliates, as substitutes for gaining direct exposure to securities or a group of securities in the Index. A Portfolio may also invest in the securities of Chinese companies, normally restricted to residents of the People's Republic of China (commonly known as "A Shares" or "China A Shares"), through the Stock Connect program or other channels. From time to time securities are added to or removed from the Index. SSGA may sell securities that are represented in the Index, or purchase securities that are not yet represented in the Index, prior to or after their removal or addition to the Index. The Strategy may at times purchase or sell index futures contracts, or options on those futures, or engage in other transactions involving the use of derivatives, in lieu of investment directly in the securities making up the Index or to enhance the Strategy's replication of the Index return. The Strategy's return may not match the return of the Index.

Footnotes

Firm Definition: For the purpose of complying with the Global Investment Performance Standards (GIPS®), the firm ("SSGA-Global") is defined as all portfolios managed across the global offices of State Street Global Advisors (SSGA) and SSGA Funds Management, Inc., with the exception of Charitable Asset Management which is held out to the marketplace as a distinct business entity. Prior to January 2011, SSGA-Global excluded its wrap fee business and assets accounted for on a book value basis (global cash and stable value assets). Prior to July 2017, SSGA-Global excluded Fiduciary Advisory Solutions. In January 2011, SSGA acquired the Bank of Ireland Asset Management Limited (now known as SSGA Ireland Limited), a GIPS Compliant firm. On January 01, 2012 SSGA Ireland Limited assets were merged into SSGA-Global. In July 2016, SSGA acquired the asset management and advisory services business conducted by GE Asset Management ("GEAM"), a GIPS Compliant firm. On July 01, 2017 GEAM assets were merged into SSGA-Global. **Composite Description:** The Composite seeks to achieve the Investment Objective described below using the Investment Strategy described below.

Compliance Statement: SSGA-Global claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with GIPS. SSGA-Global claims compliance with the GIPS standards from January 01, 2000. The period prior to January 01, 2000 (where shown) is not in compliance, as not all actual fee-paying portfolios are in a composite. SSGA-Global has been independently verified for the periods January 01, 2000 through December 31, 2018. GE Asset Management (GEAM) was not independently verified for the calendar year 2016 while transitioning into the firm. The verification report is available upon request. Verification assesses whether (1) the firm has complied with all the composite construction requirements of the GIPS standards on a firm-wide basis and (2) the firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS standards. Verification does not ensure the accuracy of any specific composite presentation.

List Available: A complete list of the firm's composites and their descriptions is available upon request.

Creation Date: The composite was created on January 01, 2009.

Benchmark Description: The benchmark for the composite is the MSCI ACWI ex USA Index. Index returns are unmanaged and do not reflect the deduction of any fees or expenses but include all items of income, gain, and loss.

Currency: Performance is presented in USD.

Use of Subadvisors: None.

Fees: Returns are expressed gross of management fees. The results do not reflect the deduction of investment management fees. Some members of this composite may accrue administration fees. The client's return will be reduced by the management fee. For example, if an annualized gross return of 10% was achieved over a 5-year period and a management fee of 1% per year was charged and deducted annually, then the resulting total return would be reduced from 61% to 54%.

Fee Schedule: Management fees are 0.080% of the first \$50,000,000; 0.070% of the next \$50,000,000; and 0.060% thereafter for a commingled fund; and 0.120% of the first \$50,000,000; 0.095% of the next \$50,000,000; and 0.085% thereafter for separately managed accounts. The minimum annual management fee for a separately managed accounts is \$250,000. Management fees may be adjusted based upon specific client requirements.

Derivatives Use: SSGA may use futures and other derivatives from time to time in the management of the Strategy generally as a temporary substitute for cash investments or for hedging purposes and not with the purpose of creating investment leverage.

Calculation Methodology: Additional information is available upon request regarding the firm's policies and procedures for calculating and reporting performance results as well as valuation procedures.

Annualized Returns: All returns for periods greater than one year have been annualized.

Withholding Taxes Differences: None.

Exchange Rates Differences Between Composite & Benchmark: None.

Minimum Asset Level for Inclusion: None.

Dispersion: Asset-Weighted standard deviation is calculated using the annual returns of the accounts that were included in the composite for all periods of the year and is not presented for periods with 5 or fewer accounts in the composite for the full year.

Significant Events: In January 2019, Ralph Layman, Vice Chairman of SSGA retired from the firm. In July 2019, Timothy Corbett became State Street Global Advisors' Chief Risk Officer.

Past and Future Performance: Historic performance is not necessarily indicative of actual future investment performance, which could differ substantially.

GIPS® Report: S&P 500 Index Composite (As of December 31, 2019)

Gross Returns

Period	Quarter	YTD	1 Year	3 Years	5 Years	10 Years	Inception Jan 1986
S&P 500 Index Composite	9.08	31.49	31.49	15.28	11.72	13.59	N/A
S&P 500 Index	9.07	31.49	31.49	15.27	11.70	13.56	N/A

Year	S&P 500 Index Composite	S&P 500 Index
2019	31.49	31.49
2018	-4.38	-4.38
2017	21.85	21.83
2016	12.00	11.96
2015	1.43	1.38
2014	13.71	13.69
2013	32.42	32.39
2012	16.04	16.00
2011	2.14	2.11
2010	15.12	15.06

Year	No. of Portfolios at Period End	Composite Dispersion	3 Yr Annualized Standard Deviation — Composite	3 Yr Annualized Standard Deviation — Benchmark	Total Assets at End of Period (USD)	% of Firm's Assets	Total Firm Assets (USD mil)
2019	16	0.01	11.94	11.93	63,883,107,388	2.09	3,052,585
2018	15	0.02	10.80	10.80	54,519,096,204	2.22	2,457,404
2017	18	0.02	9.93	9.92	69,547,585,278	2.56	2,714,705
2016	19	0.03	10.59	10.59	69,105,138,042	3.02	2,291,833
2015	20	0.04	10.48	10.47	62,069,196,320	2.84	2,188,091
2014	20	0.03	8.97	8.97	67,773,578,217	2.84	2,383,493
2013	20	0.04	11.93	11.94	67,232,162,274	2.95	2,279,237
2012	20	0.04	15.08	15.09	55,499,052,765	2.74	2,023,842
2011	18	0.01	18.69	18.71	62,152,623,788	3.52	1,768,142
2010	14	0.03	21.84	21.85	58,677,181,141	3.86	1,518,977

gPASP500

* 5 portfolios or less. ** Less than 3 years.

Quarterly and YTD returns are not annualized.

Investment Objective: The Strategy seeks an investment return that approximates as closely as practicable, before expenses, the performance of its benchmark index (the "Index") over the long term.

Investment Strategy: The Strategy is managed using an "indexing" investment approach, by which SSGA attempts to approximate, before expenses, the performance of the Index over the long term. SSGA will typically attempt to invest in the equity securities comprising the Index, in approximately the same proportions as they are represented in the Index. Equity securities may include common stocks, preferred stocks, depository receipts, or other securities convertible into common stock. The Strategy may purchase securities in their initial public offerings ("IPOs"). In some cases, it may not be possible or practicable to purchase all of the securities comprising the Index, or to hold them in the same weightings as they represent in the Index. In those circumstances, SSGA may employ a sampling or optimization technique to construct the portfolio in question. From time to time securities are added to or removed from the Index. SSGA may sell securities that are represented in the Index, or purchase securities that are not yet represented in the Index, prior to or after their removal or addition to the Index. The Strategy will not use futures or other derivatives to create "notional" or "synthetic" index exposures or engage in other transactions involving the use of derivatives in lieu of investment directly in the securities making up the Index. The Strategy's return may not match the return of the Index.

Footnotes

Firm Definition: For the purpose of complying with the Global Investment Performance Standards (GIPS®), the firm ("SSGA-Global") is defined as all portfolios managed across the global offices of State Street Global Advisors (SSGA) and SSGA Funds Management, Inc., with the exception of Charitable Asset Management which is held out to the marketplace as a distinct business entity. Prior to January 2011, SSGA-Global excluded its wrap fee business and assets accounted for on a book value basis (global cash and stable value assets). Prior to July 2017, SSGA-Global excluded Fiduciary Advisory Solutions. In January 2011, SSGA acquired the Bank of Ireland Asset Management Limited (now known as SSGA Ireland Limited), a GIPS Compliant firm. On January 01, 2012 SSGA Ireland Limited assets were merged into SSGA-Global. In July 2016, SSGA acquired the asset management and advisory services business conducted by GE Asset Management ("GEAM"), a GIPS Compliant firm. On July 01, 2017 GEAM assets were merged into SSGA-Global.

Composite Description: The Composite seeks to achieve the Investment Objective described below using the Investment Strategy described below.

Compliance Statement: SSGA-Global claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with GIPS. SSGA-Global claims compliance with the GIPS standards from January 01, 2000. The period prior to January 01, 2000 (where shown) is not in compliance, as not all actual fee-paying portfolios are in a composite. SSGA-Global has been independently verified for the periods January 01, 2000 through December 31, 2018. GE Asset Management (GEAM) was not independently verified for the calendar year 2016 while transitioning into the firm. The verification report is available upon request. Verification assesses whether (1) the firm has complied with all the composite construction requirements of the GIPS standards on a firm-wide basis and (2) the firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS standards. Verification does not ensure the accuracy of any specific composite presentation.

List Available: A complete list of the firm's composites and their descriptions is available upon request.

Creation Date: The composite was created on January 01, 2009.

Benchmark Description: The benchmark for the composite is the S&P 500 Index. Index returns are unmanaged and do not reflect the deduction of any fees or expenses but include all items of income, gain, and loss.

Currency: Performance is presented in USD.

Use of Subadvisors: This composite contains portfolios that were managed on a sub-advised basis for the period from September 01, 2002 to August 31, 2008.

Fees: Returns are expressed gross of management fees. The results do not reflect the deduction of investment management fees. Some members of this composite may accrue administration fees. The client's return will be reduced by the management fee. For example, if an annualized gross return of 10% was achieved over a 5-year period and a management fee of 1% per year was charged and deducted annually, then the resulting total return would be reduced from 61% to 54%.

Fee Schedule: Management fees are 0.030% of the first \$50,000,000; 0.020% of the next \$50,000,000; and 0.020% thereafter for a commingled fund; and 0.050% of the first \$50,000,000; 0.040% of the next \$50,000,000; and 0.020% thereafter for separately managed accounts. The minimum annual management fee for a separately managed accounts is \$175,000. Management fees may be adjusted based upon specific client requirements.

Derivatives Use: SSGA may use futures and other derivatives from time to time in the management of the Strategy generally as a temporary substitute for cash investments or for hedging purposes and not with the purpose of creating investment leverage.

Calculation Methodology: Additional information is available upon request regarding the firm's policies and procedures for calculating and reporting performance results as well as valuation procedures.

Annualized Returns: All returns for periods greater than one year have been annualized.

Withholding Taxes Differences: None.

Exchange Rates Differences Between Composite & Benchmark: None.

Minimum Asset Level for Inclusion: None.

Dispersion: Asset-Weighted standard deviation is calculated using the annual returns of the accounts that were included in the composite for all periods of the year and is not presented for periods with 5 or fewer accounts in the composite for the full year.

Significant Events: In January 2019, Ralph Layman, Vice Chairman of SSGA retired from the firm. In July 2019, Timothy Corbett became State Street Global Advisors' Chief Risk Officer.

Past and Future Performance: Historic performance is not necessarily indicative of actual future investment performance, which could differ substantially.

GIPS® Report: MSCI World ex-US IMI Index Composite (As of December 31, 2019)

Gross Returns

Period	Quarter	YTD	1 Year	3 Years	5 Years	10 Years	Inception Jun 2008
MSCI World ex-US IMI Index Composite	8.38	23.40	23.40	9.97	6.26	6.12	N/A
MSCI GIM World ex USA IMI Index	8.36	22.91	22.91	9.49	5.79	5.66	N/A

Year	MSCI World ex-US IMI Index Composite	MSCI GIM World ex USA IMI Index
2019	23.40	22.91
2018	-14.26	-14.68
2017	25.71	25.17
2016	3.47	2.95
2015	-1.54	-1.95
2014	-4.02	-4.46
2013	22.04	21.57
2012	17.04	16.55
2011	-12.17	-12.66
2010	11.00	10.66

Year	No. of Portfolios at Period End	Composite Dispersion	3 Yr Annualized Standard Deviation — Composite	3 Yr Annualized Standard Deviation — Benchmark	Total Assets at End of Period (USD)	% of Firm's Assets	Total Firm Assets (USD mil)
2019	7	0.05	10.88	10.88	9,679,408,885	0.32	3,052,585
2018	7	N/A	11.22	11.21	7,837,120,003	0.32	2,457,404
2017	*	N/A	11.58	11.57	10,113,332,544	0.37	2,714,705
2016	*	N/A	12.24	12.24	7,893,713,583	0.34	2,291,833
2015	*	N/A	12.07	12.08	7,638,828,815	0.35	2,188,091
2014	*	N/A	12.70	12.73	8,737,702,514	0.37	2,383,493
2013	*	N/A	15.92	15.95	8,718,610,603	0.38	2,279,237
2012	*	N/A	19.01	19.06	7,452,123,406	0.37	2,023,842
2011	*	N/A	22.33	22.36	5,858,062,320	0.33	1,768,142
2010	*	N/A	**	**	6,027,890,286	0.40	1,518,977

gPWxUIMI
 * 5 portfolios or less.
 ** Less than 3 years.
 Quarterly and YTD returns are not annualized.

Footnotes

Firm Definition: For the purpose of complying with the Global Investment Performance Standards (GIPS®), the firm ("SSGA-Global") is defined as all portfolios managed across the global offices of State Street Global Advisors (SSGA) and SSGA Funds Management, Inc., with the exception of Charitable Asset Management which is held out to the marketplace as a distinct business entity. Prior to January 2011, SSGA-Global excluded its wrap fee business and assets accounted for on a book value basis (global cash and stable value assets). Prior to July 2017, SSGA-Global excluded Fiduciary Advisory Solutions. In January 2011, SSGA acquired the Bank of Ireland Asset Management Limited (now known as SSGA Ireland Limited), a GIPS Compliant firm. On January 01, 2012 SSGA Ireland Limited assets were merged into SSGA-Global. In July 2016, SSGA acquired the asset management and advisory services business conducted by GE Asset Management ("GEAM"), a GIPS Compliant firm. On July 01, 2017 GEAM assets were merged into SSGA-Global.

Composite Description: The MSCI World ex-US IMI Index Composite seeks to replicate the performance of the MSCI GIM World ex USA IMI Index while minimizing transaction costs.

Compliance Statement: SSGA-Global claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with GIPS. SSGA-Global claims compliance with the GIPS standards from January 01, 2000. The period prior to January 01, 2000 (where shown) is not in compliance, as not all actual fee-paying portfolios are in a composite. SSGA-Global has been independently verified for the periods January 01, 2000 through December 31, 2018. GE Asset Management (GEAM) was not independently verified for the calendar year 2016 while transitioning into the firm. The verification report is available upon request. Verification assesses whether (1) the firm has complied with all the composite construction requirements of the GIPS standards on a firm-wide basis and (2) the firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS standards.

Verification does not ensure the accuracy of any specific composite presentation.

List Available: A complete list of the firm's composites and their descriptions is available upon request.

Currency: Performance is presented in USD.

Creation Date: The composite was created on January 01, 2009.

Benchmark Description: The benchmark for the composite is the MSCI GIM World ex USA IMI Index. Index returns are unmanaged and do not reflect the deduction of any fees or expenses but include all items of income, gain, and loss.

Use of Subadvisors: None.

Fees: Returns are expressed gross of management fees. The results do not reflect the deduction of investment management fees. Some members of this composite may accrue administration fees. The client's return will be reduced by the management fee. For example, if an annualized gross return of 10% was achieved over a 5-year period and a management fee of 1% per year was charged and deducted annually, then the resulting total return would be reduced from 61% to 54%.

Fee Schedule: Management fees are 0.100% of the first \$50,000,000; 0.080% of the next \$50,000,000; and 0.070% thereafter. The minimum annual management fee for separately managed accounts is \$250,000. Management fees may be adjusted based upon specific client requirements.

Derivatives Use: SSGA may use futures and other derivatives from time to time in the management of the Strategy generally as a temporary substitute for cash investments or for hedging purposes and not with the purpose of creating investment leverage.

Calculation Methodology: Additional information is available upon request regarding the firm's policies and procedures for calculating and reporting performance results as well as valuation procedures.

Annualized Returns: All returns for periods greater than one year have been annualized.

Withholding Taxes Differences: None.

Exchange Rates Differences Between Composite & Benchmark: None.

Minimum Asset Level for Inclusion: None.

Dispersion: Asset-Weighted standard deviation is calculated using the annual returns of the accounts that were included in the composite for all periods of the year and is not presented for periods with 5 or fewer accounts in the composite for the full year.

Significant Events: In January 2019, Ralph Layman, Vice Chairman of SSGA retired from the firm. In July 2019, Timothy Corbett became State Street Global Advisors' Chief Risk Officer.

Past and Future Performance: Historic performance is not necessarily indicative of actual future investment performance, which could differ substantially.

GIPS® Report: MSCI Emerging Markets Index Composite (As of December 31, 2019)

Gross Returns

Period	Quarter	YTD	1 Year	3 Years	5 Years	10 Years	Inception Jan 1996
MSCI Emerging Markets Index Composite	11.87	18.49	18.49	11.56	5.54	3.58	N/A
MSCI Emerging Markets Index	11.84	18.42	18.42	11.57	5.61	3.68	N/A

Year	MSCI Emerging Markets Index Composite	MSCI Emerging Markets Index
2019	18.49	18.42
2018	-14.66	-14.57
2017	37.31	37.28
2016	10.98	11.19
2015	-15.01	-14.92
2014	-2.24	-2.19
2013	-2.64	-2.60
2012	18.01	18.22
2011	-18.44	-18.42
2010	18.52	18.88

Year	No. of Portfolios at Period End	Composite Dispersion	3 Yr Annualized Standard Deviation — Composite	3 Yr Annualized Standard Deviation — Benchmark	Total Assets at End of Period (USD)	% of Firm's Assets	Total Firm Assets (USD mil)
2019	8	0.17	14.17	14.17	24,455,321,803	0.80	3,052,585
2018	9	0.08	14.60	14.60	17,382,619,193	0.71	2,457,404
2017	9	0.13	15.31	15.35	18,504,617,660	0.68	2,714,705
2016	8	0.19	16.01	16.07	11,469,759,656	0.50	2,291,833
2015	8	0.17	13.99	14.06	11,540,812,081	0.53	2,188,091
2014	7	N/A	14.95	15.00	12,884,506,222	0.54	2,383,493
2013	10	0.12	18.96	19.04	13,559,415,320	0.59	2,279,237
2012	9	0.05	21.56	21.50	14,431,687,478	0.71	2,023,842
2011	7	0.18	25.72	25.76	8,004,475,857	0.45	1,768,142
2010	7	N/A	32.50	32.58	7,460,224,452	0.49	1,518,977

gP-EMF.

* 5 portfolios or less.

** Less than 3 years.

Quarterly and YTD returns are not annualized.

Investment Objective: The Strategy seeks an investment return that approximates as closely as practicable, before expenses, the performance of its benchmark index (the "Index") over the long term.

Investment Strategy: The Strategy is managed using an "indexing" investment approach, by which SSGA attempts to approximate, before expenses, the performance of the Index over the long term. SSGA will typically attempt to invest in the equity securities comprising the Index, in approximately the same proportions as they are represented in the Index. Equity securities may include common stocks, preferred stocks, depository receipts, or other securities convertible into common stock. Equity securities held by the Strategy may be denominated in foreign currencies and may be held outside the United States. In some cases, it may not be possible or practicable to purchase all of the securities comprising the Index, or to hold them in the same weightings as they represent in the Index. In those circumstances, SSGA may employ a sampling or optimization technique to construct the portfolio in question. SSGA may also utilize other pooled investment vehicles, including those managed by SSGA and its affiliates, as substitutes for gaining direct exposure to securities or a group of securities in the Index. A Portfolio may also invest in the securities of Chinese companies, normally restricted to residents of the People's Republic of China (commonly known as "A Shares" or "China A Shares"), through the Stock Connect program or other channels. From time to time securities are added to or removed from the Index. SSGA may sell securities that are represented in the Index, or purchase securities that are not yet represented in the Index, prior to or after their removal or addition to the Index. The Strategy may at times purchase or sell index futures contracts, or options on those futures, or engage in other transactions involving the use of derivatives, in lieu of investment directly in the securities making up the Index or to enhance the Strategy's replication of the Index return. The Strategy's return may not match the return of the Index.

Footnotes

Firm Definition: For the purpose of complying with the Global Investment Performance Standards (GIPS®), the firm ("SSGA-Global") is defined as all portfolios managed across the global offices of State Street Global Advisors (SSGA) and SSGA Funds Management, Inc., with the exception of Charitable Asset Management which is held out to the marketplace as a distinct business entity. Prior to January 2011, SSGA-Global excluded its wrap fee business and assets accounted for on a book value basis (global cash and stable value assets). Prior to July 2017, SSGA-Global excluded Fiduciary Advisory Solutions. In January 2011, SSGA acquired the Bank of Ireland Asset Management Limited (now known as SSGA Ireland Limited), a GIPS Compliant firm. On January 01, 2012 SSGA Ireland Limited assets were merged into SSGA-Global. In July 2016, SSGA acquired the asset management and advisory services business conducted by GE Asset Management ("GEAM"), a GIPS Compliant firm. On July 01, 2017 GEAM assets were merged into SSGA-Global.

Composite Description: The Composite seeks to achieve the Investment Objective described below using the Investment Strategy described below.

Compliance Statement: SSGA-Global claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with GIPS. SSGA-Global claims compliance with the GIPS standards from January 01, 2000. The period prior to January 01, 2000 (where shown) is not in compliance, as not all actual fee-paying portfolios are in a composite. SSGA-Global has been independently verified for the periods January 01, 2000 through December 31, 2018. GE Asset Management (GEAM) was not independently verified for the calendar year 2016 while transitioning into the firm. The verification report is available upon request. Verification assesses whether (1) the firm has complied with all the composite construction requirements of the GIPS standards on a firm-wide basis and (2) the firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS standards. Verification does not ensure the accuracy of any specific composite presentation.

List Available: A complete list of the firm's composites and their descriptions is available upon request.

Currency: Performance is presented in USD.

Creation Date: The composite was created on January 01, 2009.

Benchmark Description: The benchmark for the composite is the MSCI Emerging Markets Index. Index returns are unmanaged and do not reflect the deduction of any fees or expenses but include all items of income, gain, and loss.

Use of Subadvisors: None.

Fees: Returns are expressed gross of management fees. The results do not reflect the deduction of investment management fees. Some members of this composite may accrue administration fees. The client's return will be reduced by the management fee. For example, if an annualized gross return of 10% was achieved over a 5-year period and a management fee of 1% per year was charged and deducted annually, then the resulting total return would be reduced from 61% to 54%.

Fee Schedule: Management fees are 0.130% of the first \$50,000,000; 0.120% of the next \$50,000,000; and 0.090% thereafter for a commingled fund; and 0.200% of the first \$50,000,000; 0.180% of the next \$50,000,000; and 0.100% thereafter for separately managed accounts. The minimum annual management fee for a separately managed accounts is \$250,000. Management fees may be adjusted based upon specific client requirements.

Derivatives Use: SSGA may use futures and other derivatives from time to time in the management of the Strategy generally as a temporary substitute for cash investments or for hedging purposes and not with the purpose of creating investment leverage.

Calculation Methodology: Additional information is available upon request regarding the firm's policies and procedures for calculating and reporting performance results as well as valuation procedures.

Annualized Returns: All returns for periods greater than one year have been annualized.

Withholding Taxes Differences: None.

Exchange Rates Differences Between Composite & Benchmark: None.

Minimum Asset Level for Inclusion: None.

Dispersion: Asset-Weighted standard deviation is calculated using the annual returns of the accounts that were included in the composite for all periods of the year and is not presented for periods with 5 or fewer accounts in the composite for the full year.

Significant Events: In January 2019, Ralph Layman, Vice Chairman of SSGA retired from the firm. In July 2019, Timothy Corbett became State Street Global Advisors' Chief Risk Officer.

Past and Future Performance: Historic performance is not necessarily indicative of actual future investment performance, which could differ substantially.

GIPS® Report: Daily MSCI Emerging Markets Index Composite (As of December 31, 2019)

Gross Returns

Period	Quarter	YTD	1 Year	3 Years	5 Years	10 Years	Inception Feb 1997
Daily MSCI Emerging Markets Index Composite	11.84	18.46	18.46	11.68	5.73	3.62	N/A
MSCI Emerging Markets Index	11.84	18.42	18.42	11.57	5.61	3.68	N/A

Year	Daily MSCI Emerging Markets Index Composite	MSCI Emerging Markets Index
2019	18.46	18.42
2018	-14.58	-14.57
2017	37.66	37.28
2016	11.67	11.19
2015	-15.07	-14.92
2014	-2.65	-2.19
2013	-3.19	-2.60
2012	19.05	18.22
2011	-18.46	-18.42
2010	18.12	18.88

Year	No. of Portfolios at Period End	Composite Dispersion	3 Yr Annualized Standard Deviation — Composite	3 Yr Annualized Standard Deviation — Benchmark	Total Assets at End of Period (USD)	% of Firm's Assets	Total Firm Assets (USD mil)
2019	*	N/A	14.20	14.17	13,468,847,073	0.44	3,052,585
2018	*	N/A	14.49	14.60	10,991,734,979	0.45	2,457,404
2017	*	N/A	15.24	15.35	13,386,605,949	0.49	2,714,705
2016	*	N/A	16.05	16.07	8,911,071,065	0.39	2,291,833
2015	*	N/A	14.09	14.06	6,859,136,190	0.31	2,188,091
2014	*	N/A	15.15	15.00	7,353,562,306	0.31	2,383,493
2013	*	N/A	19.48	19.04	5,895,412,899	0.26	2,279,237
2012	*	N/A	22.02	21.50	5,601,766,741	0.28	2,023,842
2011	*	N/A	26.30	25.76	4,249,579,480	0.24	1,768,142
2010	*	N/A	32.62	32.58	4,456,216,460	0.29	1,518,977

gP-DEMIF.

* 5 portfolios or less.

** Less than 3 years.

Quarterly and YTD returns are not annualized.

Investment Objective: The Strategy seeks an investment return that approximates as closely as practicable, before expenses, the performance of its benchmark index (the "Index") over the long term.

Investment Strategy: The Strategy is managed using an "indexing" investment approach, by which SSGA attempts to approximate, before expenses, the performance of the Index over the long term. SSGA will typically attempt to invest in the equity securities comprising the Index, in approximately the same proportions as they are represented in the Index. Equity securities may include common stocks, preferred stocks, depository receipts, or other securities convertible into common stock. Equity securities held by the Strategy may be denominated in foreign currencies and may be held outside the United States. In some cases, it may not be possible or practicable to purchase all of the securities comprising the Index, or to hold them in the same weightings as they represent in the Index. In those circumstances, SSGA may employ a sampling or optimization technique to construct the portfolio in question. From time to time securities are added to or removed from the Index. SSGA may sell securities that are represented in the Index, or purchase securities that are not yet represented in the Index, prior to or after their removal or addition to the Index. SSGA may also utilize other pooled investment vehicles, including those managed by SSGA and its affiliates, as substitutes for gaining direct exposure to securities or a group of securities in the Index. The Strategy may at times purchase or sell index futures contracts, or options on those futures, or engage in other transactions involving the use of derivatives, in lieu of investment directly in the securities making up the Index or to enhance the Strategy's replication of the Index return. The Strategy's return may not match the return of the Index. SSGA may implement the Strategy's asset allocations through investments in indexing investment vehicles, which typically attempt to replicate the returns of a specific index or group of indices. These will typically include investment pools (which may, but will not necessarily, be registered under the U.S. Investment Company Act of 1940, as amended) managed or sponsored by SSGA or an affiliate. Because of the unit issuance processes employed by the various underlying investment pools, allocations by the Strategy to certain pools on a given trading day may be invested in such pools at the next trading day's net asset value per unit. This will result in the portion of the Strategy's assets being invested in such investment pools being held in cash for the trading day and may result in increased active risk. This could adversely impact the return to any investor.

Footnotes

Firm Definition: For the purpose of complying with the Global Investment Performance Standards (GIPS®), the firm ("SSGA-Global") is defined as all portfolios managed across the global offices of State Street Global Advisors (SSGA) and SSGA Funds Management, Inc., with the exception of Charitable Asset Management which is held out to the marketplace as a distinct business entity. Prior to January 2011, SSGA-Global excluded its wrap fee business and assets accounted for on a book value basis (global cash and stable value assets). Prior to July 2017, SSGA-Global excluded Fiduciary Advisory Solutions. In January 2011, SSGA acquired the Bank of Ireland Asset Management Limited (now known as SSGA Ireland Limited), a GIPS Compliant firm. On January 01, 2012 SSGA Ireland Limited assets were merged into SSGA-Global. In July 2016, SSGA acquired the asset management and advisory services business conducted by GE Asset Management ("GEAM"), a GIPS Compliant firm. On July 01, 2017 GEAM assets were merged into SSGA-Global.

Composite Description: The Composite seeks to achieve the Investment Objective described below using the Investment Strategy described below.

Compliance Statement: SSGA-Global claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with GIPS. SSGA-Global claims compliance with the GIPS standards from January 01, 2000. The period prior to January 01, 2000 (where shown) is not in compliance, as not all actual fee-paying portfolios are in a composite. SSGA-Global has been independently verified for the periods January 01, 2000 through December 31, 2018. GE Asset Management (GEAM) was not independently verified for the calendar year 2016 while transitioning into the firm. The verification report is available upon request. Verification assesses whether (1) the firm has complied with all the composite construction requirements of the GIPS standards on a firm-wide basis and (2) the firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS standards. Verification does not ensure the accuracy of any specific composite presentation.

List Available: A complete list of the firm's composites and their descriptions is available upon request.

Currency: Performance is presented in USD.

Creation Date: The composite was created on January 01, 2009.

Benchmark Description: The benchmark for the composite is the MSCI Emerging Markets Index. Index returns are unmanaged and do not reflect the deduction of any fees or expenses but include all items of income, gain, and loss.

Use of Subadvisors: None.

Fees: Returns are expressed gross of management fees. The results do not reflect the deduction of investment management fees. Some members of this composite may accrue administration fees. The client's return will be reduced by the management fee. For example, if an annualized gross return of 10% was achieved over a 5-year period and a management fee of 1% per year was charged and deducted annually, then the resulting total return would be reduced from 61% to 54%.

Fee Schedule: Management fees are 0.130% of the first \$50,000,000; 0.120% of the next \$50,000,000; and 0.090% thereafter for a commingled fund; and 0.230% of the first \$50,000,000; 0.210% of the next \$50,000,000; and 0.130% thereafter for separately managed accounts. The minimum annual management fee for a separately managed accounts is \$250,000. Management fees may be adjusted based upon specific client requirements.

Derivatives Use: SSGA may use futures and other derivatives from time to time in the management of the Strategy generally as a temporary substitute for cash investments or for hedging purposes and not with the purpose of creating investment leverage.

Calculation Methodology: Additional information is available upon request regarding the firm's policies and procedures for calculating and reporting performance results as well as valuation procedures.

Annualized Returns: All returns for periods greater than one year have been annualized.

Withholding Taxes Differences: None.

Exchange Rates Differences Between Composite & Benchmark: None.

Minimum Asset Level for Inclusion: None.

Dispersion: Asset-Weighted standard deviation is calculated using the annual returns of the accounts that were included in the composite for all periods of the year and is not presented for periods with 5 or fewer accounts in the composite for the full year.

Significant Events: In January 2019, Ralph Layman, Vice Chairman of SSGA retired from the firm. In July 2019, Timothy Corbett became State Street Global Advisors' Chief Risk Officer.

Past and Future Performance: Historic performance is not necessarily indicative of actual future investment performance, which could differ substantially.

Fair Valuation: Certain members of this composite have been valued using SSGA's Fair Valuation Methodology that is different from the valuation methodology used in the benchmark. Details on SSGA's Fair Valuation Methodology are available upon request.

GIPS® Report: Russell 3000 Index Composite (As of December 31, 2019)

Gross Returns

Period	Quarter	YTD	1 Year	3 Years	5 Years	10 Years	Inception Sep 1996
Russell 3000 Index Composite	9.08	31.05	31.05	14.61	11.27	13.45	N/A
Russell 3000 Index	9.10	31.02	31.02	14.57	11.24	13.42	N/A

Year	Russell 3000 Index Composite	Russell 3000 Index
2019	31.05	31.02
2018	-5.18	-5.24
2017	21.14	21.13
2016	12.76	12.74
2015	0.49	0.48
2014	12.58	12.56
2013	33.55	33.55
2012	16.42	16.42
2011	1.16	1.03
2010	16.94	16.93

Year	No. of Portfolios at Period End	Composite Dispersion	3 Yr Annualized Standard Deviation – Composite	3 Yr Annualized Standard Deviation – Benchmark	Total Assets at End of Period (USD)	% of Firm's Assets	Total Firm Assets (USD mil)
2019	6	0.07	12.20	12.21	13,319,071,763	0.44	3,052,585
2018	6	N/A	11.16	11.18	10,179,388,437	0.41	2,457,404
2017	9	0.04	10.07	10.09	28,388,721,512	1.05	2,714,705
2016	9	0.05	10.86	10.88	24,305,717,303	1.06	2,291,833
2015	10	0.04	10.56	10.58	25,183,047,653	1.15	2,188,091
2014	9	0.05	9.27	9.29	29,571,111,148	1.24	2,383,493
2013	9	0.02	12.50	12.53	30,768,551,441	1.35	2,279,237
2012	10	0.03	15.69	15.73	25,513,402,795	1.26	2,023,842
2011	13	0.05	19.30	19.35	26,493,313,175	1.50	1,768,142
2010	13	N/A	22.59	22.62	34,998,677,504	2.30	1,518,977

gPAR3000

* 5 portfolios or less. ** Less than 3 years.

Quarterly and YTD returns are not annualized.

Investment Objective: The Strategy seeks an investment return that approximates as closely as practicable, before expenses, the performance of its benchmark index (the "Index") over the long term.

Investment Strategy: The Strategy is managed using an "indexing" investment approach, by which SSGA attempts to approximate, before expenses, the performance of the Index over the long term. SSGA will typically attempt to invest in the equity securities comprising the Index, in approximately the same proportions as they are represented in the Index. Equity securities may include common stocks, preferred stocks, depository receipts, or other securities convertible into common stock. The Strategy may purchase securities in their initial public offerings ("IPOs"). In some cases, it may not be possible or practicable to purchase all of the securities comprising the Index, or to hold them in the same weightings as they represent in the Index. In those circumstances, SSGA may employ a sampling or optimization technique to construct the portfolio in question. From time to time securities are added to or removed from the Index. SSGA may sell securities that are represented in the Index, or purchase securities that are not yet represented in the Index, prior to or after their removal or addition to the Index. The Strategy may at times purchase or sell index futures contracts, or options on those futures, or engage in other transactions involving the use of derivatives, in lieu of investment directly in the securities making up the Index or to enhance the Strategy's replication of the Index return. The Strategy's return may not match the return of the Index.

Footnotes

Firm Definition: For the purpose of complying with the Global Investment Performance Standards (GIPS®), the firm ("SSGA-Global") is defined as all portfolios managed across the global offices of State Street Global Advisors (SSGA) and SSGA Funds Management, Inc., with the exception of Charitable Asset Management which is held out to the marketplace as a distinct business entity. Prior to January 2011, SSGA-Global excluded its wrap fee business and assets accounted for on a book value basis (global cash and stable value assets). Prior to July 2017, SSGA-Global excluded Fiduciary Advisory Solutions. In January 2011, SSGA acquired the Bank of Ireland Asset Management Limited (now known as SSGA Ireland Limited), a GIPS Compliant firm. On January 01, 2012 SSGA Ireland Limited assets were merged into SSGA-Global. In July 2016, SSGA acquired the asset management and advisory services business conducted by GE Asset Management ("GEAM"), a GIPS Compliant firm. On July 01, 2017 GEAM assets were merged into SSGA-Global.

Composite Description: The Composite seeks to achieve the Investment Objective described below using the Investment Strategy described below.

Compliance Statement: SSGA-Global claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with GIPS. SSGA-Global claims compliance with the GIPS standards from January 01, 2000. The period prior to January 01, 2000 (where shown) is not in compliance, as not all actual fee-paying portfolios are in a composite. SSGA-Global has been independently verified for the periods January 01, 2000 through December 31, 2018. GE Asset Management (GEAM) was not independently verified for the calendar year 2016 while transitioning into the firm. The verification report is available upon request. Verification assesses whether (1) the firm has complied with all the composite construction requirements of the GIPS standards on a firm-wide basis and (2) the firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS standards. Verification does not ensure the accuracy of any specific composite presentation.

List Available: A complete list of the firm's composites and their descriptions is available upon request.

Creation Date: The composite was created on January 01, 2009.

Benchmark Description: The benchmark for the composite is the Russell 3000 Index. Index returns are unmanaged and do not reflect the deduction of any fees or expenses but include all items of income, gain, and loss.

Currency: Performance is presented in USD.

Use of Subadvisors: This composite contains portfolios that were managed on a sub-advised basis for the period from the period from September 01, 2005 to August 31, 2008.

Fees: Returns are expressed gross of management fees. The results do not reflect the deduction of investment management fees. Some members of this composite may accrue administration fees. The client's return will be reduced by the management fee. For example, if an annualized gross return of 10% was achieved over a 5-year period and a management fee of 1% per year was charged and deducted annually, then the resulting total return would be reduced from 61% to 54%.

Fee Schedule: Management fees are 0.040% of the first \$50,000,000; 0.030% of the next \$50,000,000; and 0.030% thereafter for a commingled fund; and 0.070% of the first \$50,000,000; 0.050% of the next \$50,000,000; and 0.035% thereafter for separately managed accounts. The minimum annual management fee for a separately managed accounts is \$175,000. Management fees may be adjusted based upon specific client requirements.

Derivatives Use: SSGA may use futures and other derivatives from time to time in the management of the Strategy generally as a temporary substitute for cash investments or for hedging purposes and not with the purpose of creating investment leverage.

Calculation Methodology: Additional information is available upon request regarding the firm's policies and procedures for calculating and reporting performance results as well as valuation procedures.

Annualized Returns: All returns for periods greater than one year have been annualized.

Withholding Taxes Differences: None.

Exchange Rates Differences Between Composite & Benchmark: None.

Minimum Asset Level for Inclusion: None.

Dispersion: Asset-Weighted standard deviation is calculated using the annual returns of the accounts that were included in the composite for all periods of the year and is not presented for periods with 5 or fewer accounts in the composite for the full year.

Significant Events: In January 2019, Ralph Layman, Vice Chairman of SSGA retired from the firm. In July 2019, Timothy Corbett became State Street Global Advisors' Chief Risk Officer.

Past and Future Performance: Historic performance is not necessarily indicative of actual future investment performance, which could differ substantially.

Appendix B: Important Disclosures

Disclosures

For Investment Professional Use Only.

Investing involves risk including the risk of loss of principal.

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The returns on a portfolio of securities which exclude companies that do not meet the portfolio's specified ESG criteria may trail the returns on a portfolio of securities which include such companies. A portfolio's ESG criteria may result in the portfolio investing in industry sectors or securities which underperform the market as a whole.

Past performance is not an indicator of future results.

Diversification does not ensure a profit or guarantee against loss.

Equity securities are volatile and can decline significantly in response to broad market and economic conditions.

Indexing strategies are managed with a passive investment strategy, attempting to track the performance of an unmanaged index of securities. As a result, indexing strategies may hold constituent securities of the Index regardless of the current or projected performance of a specific security, which could cause their return to be lower than if they employed an active strategy. While the strategy seeks to track the performance of the Index as closely as possible, its return may not match or achieve a high degree of correlation with the return of the Index due to operating expenses, transaction costs, cash flows and operational inefficiencies.

Foreign investments involve greater risks than US investments, including political and economic risks and the risk of currency fluctuations all of which may be magnified in emerging markets. Investing in foreign domiciled securities may involve risk of capital loss from unfavourable fluctuation in currency values, withholding taxes, from differences in generally accepted accounting principles or from economic or political instability in other nations. Investments in emerging or developing markets may be more volatile and less liquid than investing in developed markets and may involve exposure to economic structures that are generally less diverse and mature and to political systems which have less stability than those of more developed countries.

Currency Risk is a form of risk that arises from the change in price of one currency against another. Whenever investors or companies have assets or business operations across national borders, they face currency risk if their positions are not hedged.

The trademarks and service marks referenced herein are the property of their respective owners. Third party data providers make no warranties or representations of any kind relating to the accuracy, completeness or timeliness of the data and have no liability for damages of any kind relating to the use of such data.

Benchmark/Index returns are unmanaged and do not reflect the deduction of any fees or expenses. Benchmark/Index returns reflect all items of income, gain and loss and the reinvestment of dividends and other income as applicable.

Investing in futures is highly risky. Futures positions are considered highly leveraged because the initial margins are significantly smaller than the cash value of the contracts. There are a number of risks associated with futures investing including but not limited to counterparty credit risk, basis risk, currency risk, derivatives risk, foreign issuer exposure risk, sector concentration risk, leveraging and liquidity risks.

There are risks associated with investing in Real Assets and the Real Assets sector, including real estate, precious metals and natural resources. Investments can be significantly affected by events relating to these industries.

Investments in emerging or developing markets may be more volatile and less liquid than investing in developed markets and may involve exposure to economic structures that are generally less diverse and mature and to political systems which have less stability than those of more developed countries.

Companies with large market capitalizations go in and out of favor based on market and economic conditions. Larger companies tend to be less volatile than companies with smaller market capitalizations. In exchange for this potentially lower risk, the value of the security may not rise as much as companies with smaller market capitalizations.

Investments in small/mid-sized companies may involve greater risks than in those of larger, better known companies.

International Government bonds and corporate bonds generally have more moderate short-term price fluctuations than stocks, but provide lower potential long-term returns.

Because of their narrow focus, sector investing tends to be more volatile than investments that diversify across many sectors and companies.

The information provided does not constitute investment advice and it should not be relied on as such. It should not be considered a solicitation to buy or an offer to sell a security. It does not take into account any investor's particular investment objectives, strategies, tax status or investment horizon. You should consult your tax and financial advisor.

Derivative investments may involve risks such as potential illiquidity of the markets and additional risk of loss of principal.

Disclosures

Investing in REITs involves certain distinct risks in addition to those risks associated with investing in the real estate industry in general. Equity REITs may be affected by changes in the value of the underlying property owned by the REITs, while mortgage REITs may be affected by the quality of credit extended. REITs are subject to heavy cash flow dependency, default by borrowers and self-liquidation. REITs, especially mortgage REITs, are also subject to interest rate risk (i.e., as interest rates rise, the value of the REIT may decline).

Investing in commodities entail significant risk and is not appropriate for all investors. Commodities investing entail significant risk as commodity prices can be extremely volatile due to wide range of factors. A few such factors include overall market movements, real or perceived inflationary trends, commodity index volatility, international, economic and political changes, change in interest and currency exchange rates.

All the index performance results referred to are provided exclusively for comparison purposes only. It should not be assumed that they represent the performance of any particular investment.

Bonds generally present less short-term risk and volatility than stocks, but contain interest rate risk (as interest rates rise bond values and yields usually fall); issuer default risk; issuer credit risk; liquidity risk; and inflation risk. These effects are usually pronounced for longer-term securities. Any fixed income security sold or redeemed prior to maturity may be subject to a substantial gain or loss.

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Expiration Date: October 31, 2020

Appendix C: Biographies

Biographies



Heather Apperson

Heather is a Vice President of State Street Global Advisors and a Portfolio Strategist supporting the Global Equity Beta Solutions Group. She is responsible for devising and delivering index equity solutions to institutional clientele.

Prior to joining SSGA, Heather spent ten years at Barclays Global Investors and Blackrock. During that time she held various roles in investment strategy relating to global markets, institutional index investments and exchange trade funds (ETFs). In addition, she also held the lead Equity Index Product Manager role at Fidelity Investments focusing on the distribution and product positioning of index mutual funds and ETFs. She started her career in private wealth management at Merrill Lynch and Deutsche Bank Alex Brown and has been working in the investment industry since 2004.

Heather has a BSBA in Marketing from the University of Colorado at Boulder and resides in New York City.

Biographies



Sonya Park

Sonya is a Managing Director of State Street Global Advisors in the San Francisco Office. She is responsible for managing existing SSGA client relationships and driving new business development in the Western U.S.

Prior to joining State Street Global Advisors in 2011, Sonya was a Vice President at Dimensional Fund Advisors in the Institutional Sales & Services Group. Prior to Dimensional Fund Advisors, Sonya was an Associate Director at Watson Pharmaceuticals. Sonya has also worked at Lehman Brothers as an Equity Research Analyst and began her career at SEI Corporation.

Sonya earned a BA from the University of Pennsylvania and an MBA from the NYU Stern School of Business and has been working in the financial services industry since 1993. Sonya holds the FINRA 7 and 63 registrations. Sonya also holds the NFA Series 3 and 30 and is an Associated Person of SSGA Funds Management, Inc. ('SSGA FM') SSGA FM is a Commodity Trading Advisor registered with the Commodity Futures Trading Commission.

ALASKA RETIREMENT MANAGEMENT BOARD

Delegation of Authority to the CIO

Zachary Hanna, CFA
Acting Chief Investment Officer

Key Board Decisions

Determine Investment Objective

- Fund's Purpose
- Governance – who makes which decisions?

Determine Asset Allocation

- Strategic
- Tactical

Oversee Implementation

- Manager Structure – number and types of manager allocations.
- Manager Selection

Monitor Results

- Are the fund, asset classes and mandates performing as expected?
- Are they achieving objectives?

Delegation of Authority to the CIO

Alaska Statute 37.10.260 authorizes the ARMB to delegate responsibilities to officers of the Department of Revenue. The board has done this through several resolutions:

- ARMB Delegation of Authority to the CIO – Resolution 2017-05
- Rebalancing Policy – Resolution 2012-17
- Alternative Assets
 - Private Equity – Resolution 2019-18
 - Real Estate – Resolution 2018-15
 - Farmland – Resolution 2020-02
 - Timberland – Resolution 2020-03
 - Infrastructure – Resolution 2019-15

Main Delegation to CIO

ARMB Delegation of Authority – Resolution 2017-05 – Appendix page 8

- Conduct investment business consistent with ARMB direction including account setup, contracting, execution, and settlement of transactions. [page 8, items 1, 2, 3, 4]
- Rebalance the portfolio. [page 8, item 6]
- Make new investments with managers in good standing of up to one percent of total assets. [page 8, item 8]
- Approve managers naming the ARMB as a client. [page 8, item 9]
- Further delegate responsibilities to other named investment officers. [page 8, items 5, 10]

Rebalancing Policy Delegation

Rebalancing Policy – Resolution 2012-17 – Appendix page 9

- Review the asset allocation at least monthly and bring the allocation within bands unless rebalancing costs are expected to exceed benefits.
- Adjust asset class weights within ARMB approved bands.
- Inform the ARMB of asset allocation changes at the next meeting.
- Further delegate responsibilities to other named investment officers.

Alternative Asset Class Delegations

Asset class guidelines— Appendix pages 10-11

- To facilitate smaller, but often faster-moving, alternative investments, the CIO may commit up to \$100 million per new investment subject to due diligence.
- Delegated within specific asset class guidelines for private equity, real estate, farmland, timberland, and infrastructure
- ARMB Chair to receive prior notification of investments.
- All new investments must be reported to the ARMB.

Questions

Appendix – Main Delegation

- 1** Pursuant to Resolution 2017-05, the Chief Investment Officer (CIO) of the Department of Revenue is hereby authorized to commit, bind, and obligate the State of Alaska for transactions for all funds under the Alaska Retirement Management Board's management, consistent with actions and directions from the Board. **2** The CIO is not authorized to significantly alter credit quality or duration parameters of any portfolios without prior approval from the Board or its designee.
- 3** The CIO is authorized to open an account or accounts with one or more firms or financial institutions for the purpose of engaging in transactions to purchase, sell, assign, or transfer the assets, or to otherwise enter into agreements, contracts, commitments or similar arrangements, including for cash or forward settlement or futures or options contracts relating to the investment of the above funds.
- 4** The CIO is authorized to execute those transactions, and in connection therewith to deliver securities and monies, to sign and deliver agreements, contracts, commitments and confirmations and other necessary, desirable or customary documents. Other parties to the transactions may rely and act upon any verbal or written orders and instructions from him in connection with such accounts and transactions.
- 5** The CIO is further authorized to delegate the above responsibilities to other individuals. The Board shall be notified at the next meeting as to which individuals have received such delegation.
- 6** With respect to security transactions for all funds, including funds other than fixed income portfolio, the CIO is authorized to adjust asset allocation within Board approved parameters. All asset allocation adjustments, with a complete explanation for the action, must be reported to the Board at the next meeting. **7** The CIO will also be required to submit quarterly reports to the Board discussing market conditions, performance, and portfolio conditions.
- 8** The CIO is authorized to contract with current ARMB investment managers in good standing in amounts up to one percent of total ARMB defined benefit assets per single investment. This authority includes investment contracts, limited partnerships, commingled funds and joint venture investment relationships with current investment managers in all asset classes, in a manner consistent with the Board approved Investment Guidelines.
- 9** The CIO is authorized to approve investment manager requests to name ARMB in publications or written materials.
- 10** In the CIO's absence, responsibilities may be delegated to a senior investment officer, who will assume the CIO's delegated investment authority.

Appendix – Rebalancing Delegation

Rebalancing Policy

The staff of the Department of Revenue shall be responsible for reviewing the actual asset allocation of each fund on a monthly basis, typically within the first five working days after the end of a month. If an asset class weighting for a fund falls outside the allowable band established by the Board in the fund's asset allocation resolution, the Chief Investment Officer (CIO), pursuant to authority delegated by the Board, will take steps within a reasonable period of time to rebalance the fund's portfolio in order to return the actual asset allocation within the approved band unless the CIO judges the cost of rebalancing to exceed the benefit of rebalancing. For example, if the act of rebalancing forces the sale of assets at distressed values the CIO may opt to delay rebalancing until such time as assets can be sold at non-distressed values.

Additionally, the CIO is allowed the discretion to adjust asset class weights subject to the constraint that the weights must lie within the board approved bands.

The CIO will advise the Board of the rebalancing at its next regularly scheduled meeting.

The CIO may delegate this responsibility to a senior investment officer should portfolio rebalancing be necessary during the CIO's absence.

DATED at Anchorage, Alaska this 22nd day of June, 2012.


Chair

Appendix – Private Equity Delegation

Private Equity CIO Discretionary Authority:

- a) To commit to private equity partnership investments of up to \$100 million per fund. An investment with a manager that is new to the ARMB's portfolio requires concurrence on the investment decision from the ARMB private equity consultant or gatekeepers.
 - b) To engage consultants and take other action as may be necessary to ensure sufficient due diligence is performed on all investments under consideration.
 - c) With respect to the direct investment allocation target set by the ARMB annually, the CIO has the authority to commit up to an additional one percent of total defined benefit plan assets over the target to accommodate specific investment opportunities or manage the ARMB's allocation to private equity.
-
- The CIO shall exercise this discretion within Board approved asset allocations, investment plans, and guidelines as they may apply.
 - The CIO will provide prior notification to the ARMB Chair before committing to any investment under this authority. All discretionary CIO investment actions shall be reported to the Board.

Appendix – Real Assets Delegations

Real Assets CIO Discretionary Authority:

- a) To increase or decrease existing separate account allocations and investments in open-end funds;
 - b) To commit to new investment funds up to \$100 million for each fund; and,
 - c) To engage consultants and take other action as may be necessary to ensure sufficient due diligence is performed on all investments under consideration.
- The CIO shall exercise this discretion within Board approved asset allocations, investment plans, and guidelines as they may apply.
- The CIO will provide prior notification to the Chair of ARMB before committing to any investments under this authority. All discretionary CIO investment actions shall be reported to the Board.

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT: ARMB Actuary Audit Procurement

ACTION: X

DATE: September 17-18, 2020

INFORMATION:

BACKGROUND:

AS 37.10.220(a)(10) provides that the Alaska Retirement Management Board (the Board) shall contract for an independent audit of the state's actuary not less than once every four years. In order to conduct an independent audit, the Board would direct staff to prepare a request for proposal (RFP) for an independent audit on the most recent valuation reports for the Public Employees' Retirement System (PERS), the Teachers' Retirement System (TRS), National Guard/Naval Militia System (NGNMRS), the Judicial Retirement System (JRS) and the Defined Contribution Retirement System (DCR), as well as an independent audit of the most recent Actuarial Experience Analysis performed.

STATUS:

The independent audit would be performed on the following valuations: FY2019 actuarial valuations for the PERS DB, TRS DB, and PERS / TRS DCR systems. Valuations for NGNMRS and JRS are completed every other year, so the most recent valuation of each system is the FY2018 valuation. The most recent Experience Analysis was completed in 2019 for the years July 1, 2013 – June 30, 2017.

RECOMMENDATION:

The Alaska Retirement Management Board directs staff to prepare an RFP for an independent audit of the state's actuary to be conducted during FY21.

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT: Participant-Directed Plans
Empower Brokerage Option

ACTION: X

DATE: September 17-18, 2020

INFORMATION: _____

BACKGROUND

For a couple of years, members of the ARMB at different times have expressed interest in the possibility of offering a brokerage option to our membership. Occasionally members contacted trustees and staff requesting the availability of a brokerage. Division of Retirement and Benefits and Treasury staff began working together to identify objective criteria for such a tool to expand participants' expected asset accumulation experiences. The following criteria were developed:

1. Cost effective compared with other possible platforms
2. Smooth integration with the participants' current accounts and investments
3. Participant ease to utilize and discontinue
4. Robust research and information resources

STATUS

Staff evaluated three online brokerage options to meet the above criteria: Empower, TD Ameritrade (TDA), and Schwab. These solutions are similar in capabilities and features. TD Ameritrade and Schwab are well-known retail brokerage platforms whereas the Empower brokerage platform is proprietary and only available to recordkeeping customers. Empower brokerage fees are lower than TDA and Schwab fees. The TDA and Schwab platforms are not fully integrated with the accounts of our membership. (There would be significant expenses to integrate those platforms.) In contrast, the Empower platform is already fully integrated with our membership accounts. Of these three options, staff recommends the Empower Retirement brokerage platform.

1. The product provides all the tools, features and capabilities expected in the financial industry of an online brokerage platform: access to the financial markets, basic and high-level educational resources, glossaries, easy access to support staff, charting capabilities, and conditional order options.
2. Members can easily transfer money from their current accounts into the Empower brokerage account.

Treasury staff discussed the brokerage platform with Callan. Their recommendation for brokerage windows is to start very conservatively, with a limited initial roll out. It is much easier to expand

options than to limit them once they've been made available to participants. Start with ETFs and Mutual funds only.

RECOMMENDATION

The Alaska Retirement Management Board direct staff to work with Empower Retirement implementing a Brokerage platform to members of the Alaska Supplemental Annuity Plan, the Defined Contribution Retirement Plans, and the Deferred Compensation Plan.

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT: Stable Value Fund
Cash Component Modification

ACTION: X

DATE: September 17-18, 2020

INFORMATION:

BACKGROUND

The participant-directed plans under the fiduciary responsibility of Alaska Retirement Management Board (ARMB) - Deferred Compensation Plan, Supplemental Annuity Plan and PERS/TRS Defined Contribution Retirement Plans - offer the Stable Value Fund, managed by T. Rowe Price, to participants. The Fund is designed to preserve principal with a competitive rate of interest consistent with that goal.

As of July 30, 2020, the assets under management of the Stable Value Fund, across all four plans, was \$782 million, and cash reserves in the fund were .66% of fund assets, just over \$5 million total.

STATUS

The current contract allows for investing the Stable Value Fund cash reserves in either the T. Rowe Price Government Reserve Fund (RIF) or the T. Rowe Price Treasury Reserve Fund (GRF). T. Rowe Price has suggested that we include the T. Rowe Price Cash Reserves Trust (CRT) as an additional option for the investment of cash reserves in the Stable Value Fund.

The investment objective of the CRT, according to the fund documentation, is to “seek preservation of capital, liquidity and, consistent with these, the highest possible current income. The Fund is managed to provide a stable unit price of \$1 by investing in high-quality U.S. dollar-denominated money market securities.” The primary differences between the RIF and GRF funds and the CRT are the investment in prime credit securities and a duration of roughly 60 days as opposed to 30 days for RIF and GRF.

Fund Performance As of June 30, 2020	One Month	Three Months	YTD	1 Year	3 Years	5 Years	10 Years
Cash Reserves Trust (CRT)	0.07%	0.27%	0.69%	1.81%	1.95%	N/A	N/A
Treasury Reserve Fund (GRF)	0.02%	0.09%	0.44%	1.46%	1.69%	1.15%	0.62%
Government Reserve Fund (RIF)	0.01%	0.07%	0.42%	1.44%	1.69%	1.15%	0.63%

RECOMMENDATION

The Alaska Retirement Management Board direct staff to modify the existing contract for the Stable Value Fund to reflect authorization to invest cash reserves in the T. Rowe Price Cash Reserves Trust.

PUBLIC COMMENTS:

Public comment was given by the following people:

1. Mr. Nils Andreassen, AML Executive Director (Verbal)
2. Mr. Robert Schroeder, PERS Recipient/350Juneau Member (Verbal)
3. Mr. Richard Farnell, PERS Recipient/350Juneau Member (Verbal)